# STEEL

PRODUCTION

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USE



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# RYERSON

STEEL-SERVICE

Volume 92 Number 10

STEEL

*For forty-eight Years—IRON TRADE REVIEW*

PRODUCTION • PROCESSING • DISTRIBUTION • USE

# The Week in Perspective

IRON and steel executives on the sunny side of 60 can review a lifetime in the industry without recalling a week in which the markets became paralyzed so precipitately and completely, checks became non-negotiable over night, working capital was "frozen" by bank withdrawal restrictions—all aggravated by an impending change in the national administration, the outgoing administration being impotent and the incoming one unprepared to cope with such an emergency.

**Is It Possible to Fall Off a Floor?**

But grave as the situation was last week, mitigating circumstances are appearing (p. 11). The incidence of these disturbances upon an industry operating at only 15 to 17 per cent obviously is limited. No major consumer of iron and steel except the automotive industry has been taking sufficient material to recoil alarmingly. So light are inventories of all users that any easing of the tension must be accompanied by renewed buying.

**February Production Escapes Blight**

From an iron and steel production standpoint, February was too far along to react to the banking distress, and the record discloses improvement. In pig iron (p. 12), the February daily average of 19,752 gross tons is a 7.6 per cent increase over January. The net loss of one in active stacks, however, augurs poorly for March. . . . Canadian output of pig iron in January topped every month of 1932 (p. 12), with the ingot total the highest since March.

**Blast Furnaces Know No Politics**

Do Democratic administrations at Washington connote poor business? Not so far as the history of pig iron production during the two Cleveland and two Wilson administrations reveals (p. 12). . . . For active sales promotion work in iron and steel there is more warrant than this tradition. Distribution, not production, is the chore of the industry, declares (p. 13) an important executive, and advertising is an indispensable tool. In 1931 the turnover in industrial personnel was 72 per cent, indicating how rapidly the industrial audience is moving. . . . Typical of the changing picture in steel is the jigsaw puzzle craze (p. 28), which has created a substantial market for sharpened steel rules for dies and presses for stamping.

**Henry Ford Not Yet a Banker**

Detroit, whose moratorium pulled the keystone out of the banking arch, would make

*Keeping the fat out of the fire, literally. French fried potatoes, doughnuts and other tidbits will be made better in this deepfat fryer fabricated by the oxyacetylene process from heavy, full-pickled sheets*

amends by being first to go off the 5 per cent basis, but local politics is a hindrance (p. 15). After all, Henry Ford will continue as an industrialist and not emerge from this crisis as a banker. Automobile production has declined rapidly, and attenuated releases for March delivery forecast further retrenchment.

### Adapts Induction Heating to Heat Treating

Induction heating, heretofore restricted to the melting of metals, is graduating into annealing, normalizing and other methods of heat treating billets, sheets, strip, pipe, tubes, wire and other products (p. 21). As proposed by an eastern metallurgist, heating can be effected by direct induction, by radiation from an inductively-heated muffle, or by a combination of both. Special, experimental types of heaters give commercial promise. . . . In treating steel by the nitriding process, nickel is beneficial (p. 30) in that it strengthens and toughens the nitrided case and hardens the base, the range of properties it imparts being proportionate to the quantity added.

### Crane Builders Stop Broadcasting Plans

Supplying detailed drawings with each unit sold is not only a gift of valuable technical experience but also a hazard in that it opens the way to improper repairs which may damage the reputation of the builder, is the decision (p. 14) of the Locomotive Crane Manufacturers' association. Hence, by unanimous consent the practice is abolished. . . . At an Ohio steelworks, where crane cables are purchased in equal lengths, they are reeved direct from the reels to the hoisting drums (p. 32), thereby avoiding contact with the ground and consequent contamination with dirt. . . . Thorough lubrication, inside and out, of spare wire rope and cable (p. 30) usually proves to be cheap insurance.

### New Times Compel New Open-Hearth Design

Virtually a new technique in open-hearth furnace design has had to be developed (p. 25) because of the use of long roof spans, heavy roofs, the contingently greater forces to be restrained, and the desire for bindings which will hold their form and retain furnace cross sections within required limits. . . . Changing a 6000-pound direct-arc electric furnace to a 1200-pound unit was effected (p. 32) by installing a false roof, using smaller electrodes and altering transformer equipment, with a consequent saving in the power demand charge. . . . A different but noteworthy saving results (p. 24) from coating metals with a new pigment giving an iron-oxide-sand-coat finish, resistant to abrasion, atmospheric conditions, acids, alkalines and brines.

# The VOICE of INDUSTRY

*Communications appearing here do not necessarily reflect the opinion of* STEEL *or of its editors.*

### Arbitrary Price Boost as Business Aid

*To the Editor:*

From your editorial in the Feb. 13 issue of STEEL, I beg to quote, "Higher prices would be the best assurance against further deflation of wages." A very remarkable statement and to the point, but lacking to the fullest intent your thought. However, the same words rearranged supply the missing link. "Higher wages would be the best assurance against further deflation of prices."

Now if what I have said is true, high prices and high wages equal prosperity, low prices and low wages equal depression. Human beings are like steam engines, we need to be not only governed but throttled, controlled, regulated.

What we need is a capable engineer to handle the throttle. It sounds autocratic and radical, does it not? But is it? Suppose we invest the president of the United States with the power to open this throttle. (America is all right, we have plenty of steam.) Let us say that he be given the power to increase the prices of all commodities 25 per cent and all wages in the same proportion. This scheme places no burden on anyone any more than it does in times of prosperity, because we must agree that prosperity is high prices and high labor rates.

Would this plan not bring out of hiding a large amount of hoarded money, and also prevent the withdrawal of large sums from our banks? A 25 per cent increase in wages would allow the workers more to pay for the increased cost of living and also something for pleasure, luxuries, and savings.

Would not this settle at once all labor disputes? Wouldn't it put more confidence in us all? Our best minds say that what we need right now is confidence, and it will not cost anyone a penny.

Add 25 per cent on all our invoices and pay checks, starting at noon on a day set by the President.

G. F. OLIVER

Detroit.

### Pension Is National, Not State Problem

*To the Editor:*

We are unconditionally opposed to any kind of an unemployment insurance, either state or national.

We are also unconditionally opposed to state old age pensions. To attempt to relieve both unemployment and old age distress through state support is economically unsound and is wholly unfair to business and industries of the tate.

We will admit the subject of unemployment and old age distress and problems that should have attention and that relief should be provided for both. However, these problems are in themselves national problems and should be administered only as national problems, thereby distributing the burden of the expense over the entire country and not placing this burden on the industries of any one state, which would automatically place the industries of the state in an unfair positiion in meeting competition with industres of other states that do not have this burden to carry.

L. E. KINN

Fostoria, O.

# See Steel Ready for Quick Rebound from Banking Crisis

NEW YORK—Important executives of the iron and steel industry do not minimize the widespread effect of the present disturbance in banking, but they visualize early action by the incoming Roosevelt administration at Washington which will turn the situation quickly.

Inventories of iron and steel in the hands of all classes of consumers are at the vanishing point, and any easing of the tension must result in immediate orders. Gripping as the paralysis of business is, obviously the effect on an industry operating at only 17 per cent as of Monday, Feb. 27, is of less consequence than if operations had been on a broad scale. On March 4 the rate was 15 per cent.

So far-reaching are the current restrictions upon withdrawals from banks, and the consequent inability of consumers to pay for material, that toward the end of last week the stoppage of activity was more nearly complete than at any time in at least 40 years. It was believed that, the country having been precipitated into such a situation, the completeness of the tieup is beneficial in forcing the government's hand immediately.

**Ship Material Already Scheduled**

The principal effect upon the iron and steel industry has been a cessation of orders. Material being rolled for shipment to customers with approved credit ratings has been shipped, it mattering not whether the material was "frozen" at the mill or in the consumer's plant. Comparatively few cancellations have been received.

Because the automotive industry was the only major consumer of steel in the market in an encouraging manner, the incidence of the banking situation is most severe in the Cleveland and Youngstown districts. The effect upon railroad, farm implement, building and the pipe classifications is not marked because their takings of material have been negligible.

Appearing last week before the senate finance committee, which is investigating economic conditions, E. T. Weir, chairman of the National Steel Corp., Pittsburgh, epitomized the industry's viewpoint.

He said "we must have adequate tariff protection against the deflated currencies of competing nations," declared that a readjustment of foreign debts must be considered from the business and not the political angle, and urged that the federal government protect the nation "where possible failures are of such magnitude as to break down public confidence."

"This," said Mr. Weir, "can be done through the Reconstruction Finance Corp. with government funds, and it must be done on a basis of liberality in estimating the value of securities put up as collateral.

"I can not emphasize too strongly the necessity for this banking protection because no improvement can possibly be expected. In fact, I fear we will sink further, without the assurance that the banking situation of this country has the federal government behind it in an aggresive way.

"There should be no question as to the continuance of the United States on the gold standard. Inflation, or the breaking away from this basis, would undermine confidence.

"There is, to my mind, no necessity for inflation because we have ample money and credit to carry on such a volume of business as it may be possible to develop. I feel the permanent influence of this would be harmful not only to us, but to the eventual stabilization of international values.

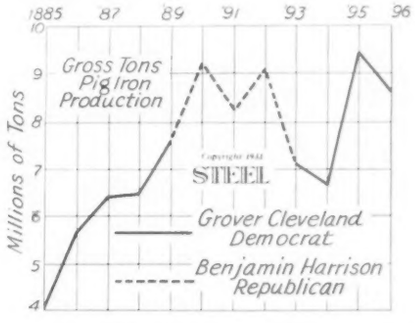
"I am opposed to any extensive use of government funds for large building programs, either of liquidating or nonliquidating character. These projects would increase the burden of taxation, and the majority of them would be of doubtful value."

## Pig Iron Output Tends Higher in Democratic Years

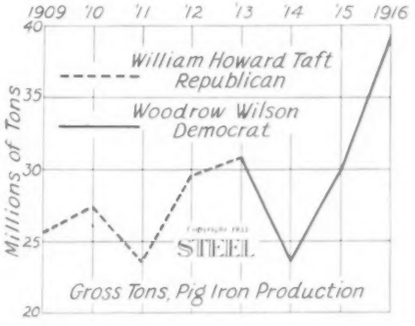
WHAT happens to iron and steel when a Democrat is President? In 1885, when Grover Cleveland became the first Democratic occupant of the White House since Buchanan, production of pig iron and ferroalloys eased fractionally to 4,044,526 gross tons, then for three years expanded.

Benjamin Harrison, succeeding Mr. Cleveland in 1889, experienced two years of expansion, then a reaction, and climaxed with 9,157,000 tons in 1892.

President Cleveland saw output sink to 6,657,388 tons at the end of his second year, but a rebound to 8,623,127 tons in his last full year. As the following chart makes plain, the eight Cleveland years were predominantly ones of improvement:




Woodrow Wilson, occupying the White House in 1913 after a break of 16 years in Democratic success, witnessed a fractional gain in pig iron output to 30,966,152 tons in his first year, then a slump to 23,332,244 tons, followed by the outbreak of the World war, which through the rest of his administration obscured comparisons. The first Wilson administration contrasts thus with the preceding Taft regime:




# Otis Bondholders Form Committee

OTIS STEEL CO., Cleveland, is continuing operations following the formation of a bondholders protective committee, occasioned by failure to meet interest payments due March 1 on its first mortgage 6 per cent sinking fund gold bonds.

The lapse in service on this issue, of which $10,827,500 is outstanding in the hands of the public and $6,155,000 is pledged to secure indebtedness of $2,688,000, was prompted by a desire to preserve the company's working capital, according to the president.

The company's cash position and the failure of the new continuous strip mill, costing $5,000,000, to make a commensurate contribution to the earnings of the company, owing to depressed demand, necessitated this action.

The company's balance sheet as of Dec. 31, 1932, shows cash of $577,941 and notes and accounts receivable of $517,442. Inventories were $3,526,033. Real estate, plant and equipment are valued at $28,325,643.

On the bondholders protective committee are representatives of the financial houses which underwrote and distributed the bonds.

# February Continues Pig Iron Gain, but Furnaces Drop

CARRIED on by the impetus built up in January, production of coke pig iron in the United States in February recorded another gain, the increase being 7.6 per cent and double the 3.9 per cent of January over December. Stack operations turned downward, however, from 45 on Jan. 31 to 44 on Feb. 28.

**AVERAGE DAILY PRODUCTION**

| | 1933 | 1932 | 1931 | 1930 |
|---|---|---|---|---|
| Jan. | 18,348 | 31,336 | 55,337 | 91,573 |
| Feb. | 19,752 | 33,122 | 61,114 | 101,640 |
| Mar. | ..... | 31,194 | 65,448 | 104,930 |
| Apr. | ..... | 28,524 | 66,986 | 106,371 |
| May | ..... | 25,282 | 64,355 | 104,564 |
| June | ..... | 20,867 | 54,599 | 97,817 |
| July | ..... | 18,394 | 47,170 | 85,110 |
| Aug. | ..... | 17,035 | 41,264 | 81,455 |
| Sept. | ..... | 19,788 | 38,947 | 75,893 |
| Oct. | ..... | 20,795 | 37,831 | 69,851 |
| Nov. | ..... | 20,858 | 36,727 | 62,182 |
| Dec. | ..... | 17,650 | 31,625 | 53,732 |
| Av. | 19,014 | 23,699 | 50,035 | 86,141 |

It is apparent that the unfavorable showing in furnace activity was due to the disturbed situation existing throughout the country during the last two weeks of the month, for of the five furnaces resuming during the month only one became active after Feb. 15 and all of the six furnaces blowing out or banking became inactive after Feb. 15.

Average daily output in February was 19,752 gross tons, which compared with the 18,348-ton rate of the preceding month was a gain of 1404 tons, or 7.6 per cent. The level still stands as the highest since last November. Production in February, one year ago, was 33,122 tons per day.

Total production amounted to 553,067 gross tons in February, against 568,785 tons in January, the loss being 15,718 tons, or 2.7 per cent. February, however, was a three-day shorter month than January. Production during last month compared with a total of 960,550 tons in February, 1932.

**FEBRUARY IRON PRODUCTION**

| | No. in blast last day of month Feb. | Jan. | Total tonnage Merchant | Nonmerchant |
|---|---|---|---|---|
| Ohio | 14 | 13 | 16,665 | 177,193 |
| Penna. | 14 | 15 | 32,953* | 107,014* |
| Alabama | 2 | 2 | 11,354 | 18,228 |
| Illinois | 3 | 3 | 18,998 | 24,537 |
| New York | 1 | 1 | ..... | 14,877 |
| Colorado | 1 | 1 | | |
| Indiana | 4 | 4 | 115 | 91,803 |
| Maryland | 2 | 2 | | |
| Virginia | 0 | 0 | | |
| Kentucky | 0 | 1 | | |
| Mass. | 0 | 0 | | |
| Tennessee | 0 | 0 | | |
| Utah | 1 | 1 | ..... | 39,330 |
| West Va. | 1 | 1 | | |
| Michigan | 1 | 1 | | |
| Minnesota | 0 | 0 | | |
| Missouri | 0 | 0 | | |
| | 44 | 45 | 80,085* | 472,982* |

*Includes ferromanganese and spiegeleisen.

**MONTHLY PIG IRON PRODUCTION**

| | 1933 | 1932 | 1931 |
|---|---|---|---|
| Jan. | 568,785 | 971,437 | 1,715,443 |
| Feb. | 553,067 | 960,550 | 1,711,192 |
| March | ..... | 967,015 | 2,028,906 |
| April | ..... | 855,734 | 2,009,582 |
| May | ..... | 783,769 | 1,995,001 |
| June | ..... | 626,015 | 1,637,998 |
| July | ..... | 570,222 | 1,462,270 |
| Aug. | ..... | 528,105 | 1,279,205 |
| Sept. | ..... | 593,640 | 1,168,436 |
| Oct. | ..... | 644,648 | 1,172,781 |
| Nov. | ..... | 625,753 | 1,101,820 |
| Dec. | ..... | 547,179 | 980,377 |
| Total | 1,121,852 | 8,674,067 | 18,263,011 |

Relating production to capacity, the operating rate for February was 14.0 per cent, moving up one whole point from the 13.0 per cent of January. Operations in December were 12.5 per cent and in November 14.7 per cent.

The 44 blast furnaces operating on the last day of February compare with 45 on Jan. 31, 42 on Dec. 31 and 51 on Nov. 30.

**RATE OF OPERATION**
(Relation of Production to Capacity)

| | 1933[1] | 1932[1] | 1931[2] | 1930[3] |
|---|---|---|---|---|
| January | 13.0 | 22.1 | 38.4 | 65.0 |
| February | 14.0 | 23.4 | 42.5 | 72.1 |
| March | ..... | 22.0 | 45.4 | 74.5 |
| April | ..... | 20.2 | 46.5 | 75.4 |
| May | ..... | 17.9 | 44.7 | 74.2 |
| June | ..... | 14.7 | 37.9 | 69.3 |
| July | ..... | 13.0 | 32.7 | 60.3 |
| August | ..... | 12.0 | 28.7 | 57.8 |
| September | ..... | 14.0 | 27.0 | 53.8 |
| October | ..... | 14.7 | 26.3 | 49.6 |
| November | ..... | 14.7 | 25.5 | 44.1 |
| December | ..... | 12.5 | 22.0 | 38.1 |

[1]Based on capacity of 51,598,175 gross tons Dec. 31, 1931; [2]on capacity of 52,515,875 tons; [3]on capacity of 51,490,680 tons. Capacities by American Iron and Steel institute.

In February, five blast furnaces became active and six went out of blast, making a net loss of one stack. Three nonmerchant or steelworks furnaces were blown in and three blown out. Of the merchant class, two were blown in and three were blown out or banked.

Among the furnaces resuming during the month were: In Ohio: Massillon, Republic Steel Corp.; Portsmouth, Wheeling Steel Corp.. In Pennsylvania: Bethlehem E, Bethlehem Steel Co.; Sheridan No. 2, Lavino Furnace Co. In Alabama: Woodward No. 2, Woodward Iron Co.

Furnaces blown out or banked were: In Ohio: Ohio No. 2, Carnegie Steel Co. In Pennsylvania: Bethlehem G, Bethlehem Steel Co.; Neville Island, Davison Coke & Iron Co.; Shenango No. 3, Shenango Furnace Co. In Kentucky: Ashland, American Rolling Mill Co. In Alabama: One City, Sloss-Sheffield Steel & Iron Co.

## Tennessee Operates Steel & Wire Works at Fairfield

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., as of March 1 took over the operation of the Fairfield, Ala., works of the American Steel & Wire Co. and the sale of its products, as a part of the reorganization program of the United States Steel Corp.

The annual capacity of the Fairfield works, which is a finishing unit, is 110,000 tons of wire rods, 102,000 tons of plain wire, 60,000 tons of galvanized wire, 28,000 tons of barbed wire, 68,000 tons of wire fencing, 1,020,000 kegs of wire nails and a small amount of bale ties, netting, staples and strand.

A year ago, the American Steel & Wire Co. took over the operation of the Minnesota Steel Co., at Duluth, as a part of the general reorganization plan.

## Canadian January Output Up

Canadian output of steel ingots and castings in January was 40,766 gross tons, largest since March, 1932. December output was 30,755 tons.

Output of pig iron in Canada in January was 29,209 gross tons, 7 per cent over the 27,031 tons of December, which was the highest for 1932.

Production of ferroalloys, mostly spiegeleisen, was 1217 tons, compared with 1090 tons in December.

## Pays $782,158 in Pensions

Bethlehem Steel Corp. paid out $782,158 in pensions in 1932, according to the annual report of the Bethlehem general pension board. In the past year, 430 workers were pensioned, making 1781 now on the pension roll. The average age of men pensioned in 1932 was 67.4 years and their average service 35.8 years.

## Scrap Men to Chicago?

Directors of the Institute of Scrap Iron and Steel Inc. are meeting at Chicago, March 14, to fix a time and place for the fifth annual convention. It is indicated that the invitation of the Chicago chapter to meet there during the 1933 Century of Progress Fair will be accepted.

# Advertising in Overalls, or 1933 Aids to Steel Sales

By L. S. HAMAKER
Manager, Sales Promotion Division,
Republic Steel Corp., Youngstown, O.

AFTER I had decided to christen this talk "Advertising in Overalls," it occurred to me that from an appearance standpoint too much industrial advertising is in overalls now, or at least its suit is badly in need of pressing. I am sure you understand my intention was to indicate that advertising is no longer the pampered darling of an indulgent management, but has actually got down to knuckle-bruising hard work.

Today the hardest task faced by industry is selling its products. Profits in most industries are out of the question. Theoretically, this difficulty can be overcome by selling a larger proportion of the possible prospects—to put pressure behind those products that will show profit and to do it at lowest possible cost.

A sale starts with the need for the product. That takes us back to the product itself and its adaptability to the needs of the prospect. Realizing this, many companies have simplified their lines or diversified them, and in many cases have completely redesigned their products.

A manufacturer of stoves decides that he can increase the attractiveness of his range if he trims it with stainless steel. A maker of sheet metal buildings, poultry equipment or air conditioning systems wants to beat competition by building longer life into his products if new design is impractical, so he adopts an alloyed iron in place of ordinary steel sheets.

### Look to Producer for Aid

A maker of automobiles learns that a certain part of his last model has caused owners an amount of grief which will be reflected in next year's sales, so he calls upon the research facilities of the steel producer, and if redesign is impossible because of cost, a new alloy steel may be born which will stand up even in a poorly-designed part and provide a talking point besides to overcome the fears of this year's car buyers. Thus are manufacturers restyling and redesigning, not to increase efficiency in some cases, but to help salability.

No one is looking for places to spend money. The mental temper of the world runs otherwise. The shop-worn phrase, "a buyer's market" has come to have real meaning. Yet we are really in a creative market. People must be made to feel that they want and need the products we have to offer. It is our job to create as much of this feeling as possible.

I have been trying to paint a picture of the task confronting the existing system of distribution, with advertising as one of its main tools. At Republic we have quit guessing about the possibilities of any particular field. If we can't determine its possibilities through any means available within our own organization, we make an outside investigation of it. We have come, through experience, to recognize that the study of markets, competitive conditions, changes in buying practices and trends in given industries, can best be done by a competent outside organization.

After the fruitful fields are selected, there remains the task of finding the buyers and other key men. Where are they and who are they? In good times it wasn't hard to find out, because jobs were more or less static. Today men are shifting around in the same plant or moving to other plants. Salesmen are losing contacts that were years in the making. And here is where the consistent advertiser is being repaid for his faith. The new executives may formerly have had nothing to say about purchases, but today they are new brooms sweeping very clean. Part of their education has come from actual experience, but much of it has come from reading the editorial and advertising pages of their industrial publications.

The extent of this turnover in industrial personnel has been enormous. In a check made by McGraw-Hill on their subscription list, consisting of half a million industrial men, it was found that only 28 per cent remained in their original jobs during 1931. Thirty-two per cent of this vast group of prospects moved to new jobs with their original companies or changed to other concerns. Forty per cent passed out of the picture entirely, which makes the staggering turnover figure of 72 per cent in industrial personnel in one single year. What does this do to the friendly contacts so carefully built up by sales organizations? You know the answer.

There is another important angle. Even in good times we are not advertising to a fixed audience. We are talking to a moving parade, and this has always been one of the most potent arguments for consistency in advertising. Today this parade is moving at double time, and last year's prospects may have passed from the scene entirely in surprising numbers.

### Here Today, Gone Tomorrow

A recent study of contracts awarded in 1930 and 1931 is highly interesting. Contractors numbering 2244 were awarded contracts in 1930; 3108 were awarded contracts in 1931. Of the latter group, the 1931 contractors, 56 per cent had done no important work the year before. They didn't look so hot then, but turned out to be the best prospects a year later. And of the first group, the 1930 builders, 67 per cent got no important work the following year. They looked good while they were busy and all of us wasted a lot of time on them, yet 67 per cent turned out to be absolute duds in 1931.

From such figures it is easy to see that selling today is no bed of roses. The most scientifically directed sales force cannot cope with such far-reaching and rapid changes. Hence the salesman who must sell without advertising finds the going particularly tough. It isn't fair to him, and the manufacturer who economizes in this manner is using expensive personal salesmanship for work which advertising could and should do more economically.

Since I am in the steel business, I hope my motives won't be misconstrued if I tell you how we use advertising in a business which, a few years ago, thought it had little or nothing to advertise.

As my department sees its job, it consists of four major activities:

1. We must keep our management sold by producing tangible results through advertising and sales promo-

## Complete Text Available

*The accompanying article is a brief abstract from a 4000-word address which, in our opinion, is one of the most illuminating discussions on the practical application of advertising to the problem of selling steel products presented during the period of depression. Upon request, and without charge, we shall be pleased to send a copy of the complete address to any reader of* STEEL.—THE EDITORS.

From an address presented before Pittsburgh Advertising Club, Pittsburgh, Feb. 28, 1933.

tion. Fortunately, our executives are sales minded. They realize that the chief problem of the steel industry is no longer production, but distribution, and that sales volume can be obtained only by co-ordinated sales and advertising effort.

2. We must keep the sales force enthusiastic and co-operating with us in order to make our advertising as efficient as their personal efforts.

3. We must help our distributors.

4. We attempt, by every means at our disposal, to carry the story of Republic and Republic's products to the greatest possible number of prospects in the fields most likely at any given time to be buyers of our goods.

We have used newspapers and the national publications in institutional campaigns, newspapers and billboards to sell domestic coke in the cities where we have blast furnaces, trade publications and direct mail to reach all the major steel using industries. In the trade press we have used color pages, inserts and just plain black and white. It all depends on the job we want to do and the money available.

**Put New Idea Over**

For instance, two years ago we brought out a new kind of pipe made by electrical resistance welding. It had many advantages over the old style pipe. It was a "natural" for the pipe line companies. We dramatized its advantages. We played up every worth-while installation by a well-known company to overcome the distrust of something new. And in the first year we sold nearly 5000 miles of a new product without any performance record behind it. We created acceptance among engineers and built up a volume almost overnight which would have taken years had not the power of advertising been thrown in with personal selling. We are going through the same process right now to a more limited degree on other new products—electrical strip, stainless steels for special uses, new alloy steels and others.

**Seeing Is Believing**

We have many complimentary reactions to Republic advertising, largely we believe, because people see it. We do not skimp on the details that make it attractive. We prepare every advertisement to fit the paper in which it will appear. This means at the present time between 30 and 40 new ads every month, because we seldom repeat copy. Every month proofs of current advertising are placed in portfolios and mailed to all executives, including production executives and all members of the sales force of the parent company, as well as all subsidiary companies.

I am often asked the question—"Why does Republic spend so much money for advertising in times like these." As a matter of fact, we don't. Our appropriation is very reasonable, but we do try to get the ultimate limit of value out of it. It is all spent judiciously, we think, to attain definite ends. We continually have new products to introduce. We are always finding and advertising new uses for established products. But we never lose sight of the fact that consistent presentation of our sales story is the best insurance of holding our position in the picture.

Advertising is one of America's basic industries. It was overproduced, like many other things, and it is suffering as a result, yet it is suffering less than many others. Percentages of decrease in 1932 from 1931 are interesting. Building contracts decreased 57 per cent, steel ingot production 48 per cent, automobile production 42 per cent, and so on; yet newspaper lineage decreased only 19 per cent and magazine advertising only 28 per cent. The only things that showed up much better than advertising are soft coal and cigarettes. These figures demonstrate, to my mind, the permanence of advertising—its ability to stand the gaff in times like these.

## Crane Makers To Cease Supplying Detail Drawings

Locomotive Crane Manufacturers association, 608 South Dearborn street, Chicago, has adopted a resolution whereby its members "in order to protect the large capital investment represented by their detail drawings, and to fairly provide for the best interests of their customers through efficient repair parts service, refrain from furnishing detail drawings of standardized products, except when justified by the needs of an emergency breakdown."

It was held by manufacturers that the practice of requiring detailed drawing of standard equipment entailed large expense, that such drawings represent costly engineering skill and technical knowledge, and that the efficiency of equipment is sometimes impaired, to the manufacturer's discredit, by faulty repairs.

## National Tube Acquires License for New Mill

Diescher Tube Mills Inc., Pittsburgh, has licensed National Tube Co., Pittsburgh, to produce seamless tubing under its patented process. The mill now is being designed and will be built largely by the National Tube Co. itself for installation in its Ellwood works, Ellwood City, Pa.

Babcock & Wilcox Tube Co. recently placed in operation at its plant in Beaver Falls, Pa., the first Diescher mill for making seamless tubing. This mill, described in STEEL, Feb. 13, can roll up to 2½-inch outside diameter, whereas the proposed mill for National Tube Co. will produce tubing up to 4½-inch outside diameter. The new mill will replace existing equipment at the Ellwood works.

## Gray Iron Institute Names Speakers for Meeting

Gray Iron Institute Inc., Cleveland, has announced the program for its annual meeting to be held in Hotel Cleveland, March 22. Among subjects to be discussed and speakers are the following:

*Cost Session.* "Progress in Cost Activities," by John L. Carter. "Importance of Classified Molding Costs," by Charles A. Klaus. "The Why of Industry Standards," by P. E. Rentschler. "Relation of Uniform Costing to Profits of Individual Members," by A. C. Denison.

*Technical Session.* "The Forward March of Gray Iron," by J. D. Coltman. "Specifications for Gray Iron Castings A48-32T," by A. C. Ziebell and W. W. MacMillen. "Properties of Gray Iron for Light Structures Analyzed," by E. B. Sherwin.

*Merchandising Session.* "Gray Iron's Opportunity," by C. B. Magrath. "Our Company's Viewpoint on Marketing," by Walter L. Seelbach. "How We Cashed in on a Sales Plan," by John Diedrich. "New Uses for Gray—Development and Application," by Arthur J. Tuscany.

*Insurance Session.* "The Gray Iron Institute Fire Insurance Plan," by W. J. Grede and J. H. Bruce.

## "Copper Highway" at Fair

Visitors to A Century of Progress exposition in Chicago this summer will be guided through various exhibits in the Electrical building by a 1200-foot triple line of 4 x ¼-inch copper bus bars, suspended from the ceiling of passageways in the buildink The "copper highway," as it is termed, will begin at the doorway of the building and continue around a circular balcony to the various sections of the central stations industry exhibit. At intervals, smaller bus bars will branch off to various booths in the exhibit.

## Welding Society To Meet

American Welding society will hold its annual meeting April 27-28 in the Engineering Societies building, New York.

The program will include business meetings; discussion of section activities; presentation of committee reports, codes and specifications; and research papers. A special feature will be a lecture on structural steel welding.

*DETROIT*

RETAIL demand for automobiles is being suffocated by the prairie fire of bank holidays and restrictions on withdrawals caused by the spontaneous combustion of the tinder-dry assets of Detroit banks.

Up to last Friday, part of the East had not been burned over, but drifting smoke and embers from nearby blackened states were frightening timid cash.

In isolated instances, it is believed, withdrawn funds may be invested in something tangible, like a new automobile, and expected action at Washington undoubtedly will quell many fears and return large sums to the banks, but early spring buying unquestionably has experienced a severe shock.

As noted for the past two weeks, automobile production is easing off. The peak of the early season rise passed about Feb. 10, when the impetus of the January shows and the novelty of the new designs wore off. The banking situation has accelerated appreciably what would normally have been a modest seasonal decline, and March probably will reflect this condition more than February.

## Seasonal Slip in Production

Assuming that February production was slightly on the underside of the approximate 120,000 units of January, March gives indications of falling below 100,000 units. Ford has lifted production to 4000 to 5000 units a week and may go higher before dealer requirements are satisfied. As an offset, Chevrolet may go below 50,000 units this month, Pontiac below 9000 and Plymouth to about 4000.

Willys-Overland practically ceased production last week when court sanction to proceed with the manufacture of 4400 additional trucks for the International Harvester Co. was denied. Whether the new radically streamlined Willys four and six will be put into production, should the company's affairs take a turn for the better, is uncertain.

It continues to be the case that the larger manufacturers, such as General Motors, Chrysler and Ford, are in a strong cash position with the bulk of their deposits, up to the end of last week, in unaffected territory. But the delay within Michigan in meeting the local situation has increasingly hampered the smaller manufacturers and a large number of partsmakers.

## Detroit Awaits New Deal

Chevrolet, Chrysler and Ford are taking prices on material for second quarter delivery. From most other manufacturers and from parts-makers no interest is evident in deliveries for this period. The effect of the banking situation upon material suppliers has been more to cut off specifications sharply than to cancel recent releases or to hold up shipments.

While conceding that the banking conflagration has spread to such an extent that only Washington can extinguish it, Detroit has been hoping to be the first to make a basic readjustment and point the way to recovery. But this hope has run afoul of a long-standing difference between Detroit and the remainder of lower Michigan.

Banks outside of Detroit are aroused because their deposits in Detroit institutions have not received preference, but have been subject to the same 5 per cent limitation as individual deposits. Failure of the Michigan legislature to enact concurrent legislation, placing national banks on the same plane as state ones, is attributed to this cause.

The publicity luck of the Fords has not deserted them even in this crisis. As reported in these columns, the first reaction after Michigan banks were closed Feb. 14 was to blame Henry Ford for not throwing a lifeline, but soon recrimination was directed toward those forces which prevented a Reconstruction Finance Corp. loan being made to save one of the "key" banks.

In the past week an enormous amount of favorable publicity has accrued to both Henry and Edsel Ford for their reported offer of $8,250,000 in cash with which to form two new banks, the personnel and policies to be dictated by the Fords. It appeared that after all his fulmination against bankers, Mr. Ford at last was to join their ranks.

But it now develops that Mr. Ford did not originate the plan or offer the $8,250,000. He acquiesced in it after being importuned by Washington and Detroit bankers, which is not detrimental to his attitude but sheds new light. The fact that deposits of debtors to the two banks in question were to be segregated and applied to their indebtedness was one factor against this plan.

In any event, at the close of last week there was every indication that the two "key" banks in Detroit would be reopened on the basis of the immediate release of liquid assets—probably 30 to 35 per cent—with a slow thawing of the remainder. This is expected about the middle of this week. Incidentally, new capital to the extent of $8,250,000 by the Fords would have released their share of $60,500,000 at present impounded. So Mr. Ford remains an industrialist.

## Cold Cripples Metal Parts

When trucks used for snow removal buck snow at a temperature of 20 degrees below zero the metal is weakened under impact by about 30 per cent, and at 30 degrees below as much as 50 per cent, according to the Four Wheel Drive Auto Co., Clintonville, Wis. Heavier parts and suitable lubricants to cushion the impact are the remedy. . . . The new Ford V-eight, with an alumi-

(*Please turn to Page* 44)

# Industrial Men in the Day's News

## Charles W. Bennett, Acting President, American Sheet & Tin Plate Co.

FORTY-ONE years, most of it with Sheet & Tin Plate, is the background of Mr. Bennett for his new post.

HIS first connection, in 1892, after leaving the University of Wisconsin, was with Illinois Steel, afterward to become a Steel corporation subsidiary.

SINCE 1906 he has been assistant to the president of Sheet & Tin Plate or in an operating capacity familiarizing him with details of that high office.

CHARLES W. BENNETT, who was named recently to the acting presidency of the American Sheet & Tin Plate Co., Pittsburgh, and who had been for the past seven years its operating vice president, has been in the steel business for 41 years and most of that time has been associated with the company which he is now heading.

After graduation with the class of 1892 at the University of Wisconsin, Mr. Bennett entered the employ of the Illinois Steel Co. in its Joliet, Ill., mechanical department. Five years later he was named mechanical engineer of the Ellwood, Ind., plant of the American Tin Plate Co.

Shortly afterward the American Sheet & Tin Plate Co. was formed, and the American Tin Plate Co. was a constituent part. At the organization of the former Mr. Bennett became district manager of the Indiana plants of the company. His headquarters still were at Ellwood, where he remained for several years.

In 1906 he was named assistant to the president of the American Sheet & Tin Plate Co., and for almost 20 years, or until Nov. 10, 1925, he held that position to E. W. Pargny, president.

Late in 1925 Stewart A. Davis, vice president in charge of operations for the company, died and Mr. Bennett succeeded him. When, on Jan. 1, 1933, Mr. Pargny obtained a year's leave of absence, Mr. Bennett was appointed acting president.

Mr. Bennett is a resident of Pittsburgh, and aside from memberships in the Duquesne, University and Pittsburgh Country Clubs, he is a member of the American Iron and Steel institute, the American Society of Mechanical Engineers and the Engineers Society of Western Pennsylvania.

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G. L. FISK has been appointed assistant to the vice president of the Blaw-Knox Co., Pittsburgh. From 1911 to 1912 he was resident engineer in British India, where he had charge of the construction of the Tata Iron & Steel Co. From 1912 to 1915 he served the Cambria Steel Co., in an engineering capacity. From 1916 to 1923 Mr. Fisk was connected with the Central Iron & Steel Co., where he had complete charge of all design and construction work necessary to the rehabilitation of the plant. In 1923 he became chief engineer of the Pittsburgh Crucible Steel Co. and the parent company, the Crucible Steel Co. of America. He remained with this company until 1927, during which time he rebuilt the Park works plant, involving the construction of three new rolling mills. Before becoming associated with Blaw-Knox Co., Mr. Fisk was chief engineer of the Mesta Machine Co. He is a member of the American Society of Mechanical Engineers and a prominent contributor of engineering articles to technical and trade journals.

□ □ □

O. S. Lee, associated with the late Harry G. Nye, president of the Nye Tool & Machine Works, for 20 years, is continuing as general manager of the company. Mr. Lee, Harry G. Nye Jr. and W. J. Grede, president of the Liberty Foundry Inc., Wauwatosa, Wis., and the Spring City Foundry Co., Waukesha, Wis., comprise the board of directors. Mr. Nye, who died Feb. 8, founded his company in 1904 and was known throughout the oil, gas and plumbing industries not only as a manufacturer but also as the author of the "Nye letters" in which he discussed business problems in a trenchant manner.

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William R. Diesel, for more than 30 years connected with Sargent & Greenleaf Inc., lock manufacturers, Rochester, N. Y., has been elected president of that company, succeeding the late William R. Hill, who died recently. Mr. Diesel enjoys a national reputation as an authority on time and combination locks.

Clarence W. Quinn, for the past ten years secretary and assistant treasurer, has been named vice president and treasurer. James G. Dale is the new secretary.

In addition to the officers, the following were elected to the board of directors: J. Fenn Smith, John W.

Force, Eric Tressing, of Chicago, and Garret D. Hill, son of the late William R. Hill.

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G. Raymond, chief engineer, Black, Sivalls & Bryson Inc., with former headquarters at Kansas City, Mo., is now permanently located at Oklahoma City, Okla.

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Edgar Wilson of Milwaukee has been appointed factory manager of the Stoughton, Wis., branch of the Highway Trailer Co., Edgerton, Wis. He succeeds J. J. Higgins.

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Paul L. Brooks, formerly Dallas, Tex., representative for Parkersburg Rig & Reel Co., Parkersburg, W. Va., has been made general sales manager with offices at Parkersburg.

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Paul J. Myler, president of the Canadian Westinghouse Co., has been elected a director of the Westinghouse Air Brake Co. and the Union Switch & Signal Co., Pittsburgh, thus filling vacancies caused by the death of E. M. Herr.

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Charles J. Hardy, general counsel for the American Car & Foundry Co., New York, has been elected president, succeeding William H. Woodin, new secretary of the treasury under President Roosevelt.

# Obituaries

WILLIAM FORD MORELAND, 37, vice president, Interstate Iron Co., subsidiary of Jones & Laughlin Steel Corp., Pittsburgh, died at Pittsburgh, Feb. 26. He was the son of Wililam C. Moreland, vice president of the Jones & Laughlin Steel Corp.

The younger Mr. Moreland was born in Pittsburgh in 1896, and attended Yale university. In 1917 he enlisted with the French ambulance corps, and after artillery training with the French army became a lieutenant in the French Foreign legion, in which he served for the duration of the war. Mr. Moreland was cited for bravery on several occasions and was awarded the Croix de Guerre.

Immediately after the war, Mr. Moreland entered the employ of Jones & Laughlin and spent two years at the company's iron mines in Virginia City, Minn., before going to the Jones & Laughlin offices in Pittsburgh.

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Frederick W. Reidenbach, 69, for many years a leading scrap metal dealer in Rochester, N. Y., died Feb. 24.

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Fred Atwater, president of the Columbia Nut & Bolt Co., Bridgeport and Millford, Conn., and organizer of both companies, died recently. He was 62.

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William T. Andrews, 72, president of the Stamford Foundry Co., Stamford, Conn., and identified with that company since 1886, died Feb. 19.

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J. S. Lane, for 30 years connected with sales department of the American Steel & Wire Co., the last six years in the Birmingham, Ala., office, died recently.

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Harold Frankel, salesman for the Pennsylvania Wood & Iron Co., Buffalo, died Feb. 28 at Buffalo. He formerly operated his own scrap metal business in Buffalo.

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Guy O. Danielson, southwestern representative, tools division, Chicago Pneumatic Tool Co., with headquarters at Oklahoma City, Okla., died Feb. 10 at Houston, Tex.

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Jacob H. Albig, founder of the Monon-Yough Foundry & Machine Co., McKeesport, Pa., about 35 years ago and which he operated until 1926, died at Pittsburgh, Feb. 26.

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Charles R. Gabriel, 66, formerly a consulting engineer for the E. W. Bliss Co., Brooklyn, N. Y., for 25 years, and an expert in the construction of power presses, died at Brooklyn, Feb. 24.

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John M. Craig, 72, who in 1905 founded the J. M. Craig Foundry Co., Hartford, Conn., and who previously was associated with the Colt's Patent Fire Arms Mfg. Co., died at Hartford, Conn., Feb. 13.

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William C. Kelly, 83, founder of Kelly Ax & Tool Co., now a division of the American Fork & Hoe Co., Cleveland, died at Charleston, W. Va., March 2. He was also president and founder of the American Barge Line.

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Darr W. Anderson, a plate department superintendent of the Railway Steel Spring Co., Latrobe, Pa., died at Latrobe, Feb. 28. He had been associated with the company both at Latrobe and in Pittsburgh for 31 years.

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John A. Bell, 78, formerly a leading coal operator in western Pennsylvania and head of the Carnegie Dock & Fuel Co., Superior, Wis., and Duluth, and at one time president of a number of western Pennsylvania banks, died at Washington, Pa., Feb. 25.

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George G. Bell, 50, for many years chief engineer of the West Penn Power Co., Pittsburgh, and widely known in the engineering field, died at Pittsburgh, Feb. 26. He held memberships in the American Society of Mechanical Engineers, American Institute of Electrical Engineers and the Engineers society.

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John McGeorge, 81, founder of the Electric Controller & Mfg. Co., and the McGeorge Mfg. Co., and recently chief engineer of Ernest McGeorge Inc., Cleveland, died Feb. 27, on being struck by an automobile. Mr. McGeorge developed equipment for the open-hearth steel furnace industry, particularly for charging. He aided in developing the tilting open-hearth furnace.

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Frederick W. Reidenbach, for nearly 40 years connected with the metal trade in Rochester, N. Y., died recently, aged 69. Mr. Reidenbach went to Rochester 38 years ago and entered the firm of Clum & Atkinson. Later he became manager of the Genesee Metal Co., afterwards Coates, Bennet & Reidenbach, with Mr. Reidenbach as president. The last named concern was well known as a smelter and refiner of metals.

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Thomas A. Beattie, 68, general superintendent of the National works, McKeesport, Pa., of the National Tube Co., Pittsburgh, died at Pittsburgh, Feb. 26. He had been injured in an automobile accident at Pittsburgh, Feb. 21. Mr. Beattie was a native of Pittsburgh and had been with the National Tube Co. for approximately 50 years. He had been general manager of the Riverside works, Wheeling, W. Va., previous to his transfer to McKeesport.

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Thomas P. Davies, 58, a former chief engineer of the Duquesne works of the Carnegie Steel Co., Pittsburgh, died at Duquesne, Pa., March 1. Mr. Davies had been a resident of Duquesne since 1886 and prior to his retirement had been affiliated with the Carnegie Steel Co. for 42 years. Besides being a member of the Duquesne board of education, he was a member of the Pittsburgh Engineers' society and several fraternal organizations.

□ □ □

Harry L. Brinker, 65, formerly general superintendent of the Brier Hill division of the Youngstown Sheet & Tube Co., Youngstown, O., died at Westfield, Pa., Feb. 10. Mr. Brinker early in his career was associated with the Bethlehem Steel Co. and Republic Iron & Steel Co. After starting as a chemist at the Ohio Works and later becoming assistant superintendent of blast furnaces at that works, he became superintendent of blast furnaces of the Brier Hill Steel Co. On the acquisition of that company by Sheet & Tube, Mr. Brinker was made general superintendent, a post he held until his retirement last September.

# EDITORIAL

## A New Deal and an Old Creed for Business

TODAY the nation is at the dawn of a new administration in its government. The party of Franklin Delano Roosevelt has taken charge at Washington. All citizens, in non-partisan spirit, unite in wishing for the incoming Chief Executive and his advisors and co-workers success in their difficult undertaking. The stern realities of the present emergency make for a degree of solidarity of public support that seldom has been accorded an occupant of the White House in time of peace.

President Roosevelt has utilized the term, a "new deal," to dramatize his conception of what should be done in administering the affairs of the government. Since he first introduced it in early days of the campaign, its application has extended far beyond the realm of politics. Born of political expediency, nourished by an increasing public complaint against existing conditions and strengthened by recent revelations of abuses of privilege in high places, the "new deal" now stands out as the matured emblem of a national policy—a policy not restricted to government alone, but applicable to all phases of financial, business and social activity.

### Depression Has Taught Us That False Gods Are Powerless to Help Us

Bitter experience has demonstrated the folly of much of our 1929 thinking. The puncture of the balloon of boom-time hopes and aspirations never has been pictured more aptly than in the following words of Myron C. Taylor*:

> "We have learned that the false gods of our ideals, the gods of size and speed, are powerless to help us. Bigness has afforded us no lasting happiness and speed no economic security, hastily gained knowledge no wisdom, and swiftly moving pleasures no serenity. We should reaffirm our faith on the basis of sobriety, simplicity and a better human understanding."

Here, in the last sentence, is an appropriate creed for "new deal" reconstruction. It applies primarily to the individual, whose character, ability and courage constitute the source of the strength of all of our institutions. Fundamental in the fight for the re-establishment of national security is a purification of the motives of men and a higher regard for the quality of integrity. Only by strengthening the moral fiber of the individual can we hope to regain a national faith in the efficacy of hard work, thrift and other old-fashioned virtues upon which this country depended for its development.

A spiritual revival of this kind, with its roots deep in the hearts of the people, would cure many of the ills with which we now are afflicted. Obedience to just laws would be more general. The very temper of public opinion would be sufficient warning to prevent much of the wrongdoing that has been tolerated under "respectable" sponsorship during the past five years.

### Weakened Moral Fiber of Nation Dulls Consciousness of Right and Wrong

A public opinion firmly rooted to old-fashioned principles would not have permitted flagrant violation of the rules of sound banking as revealed in the investigation of the National City Co. Under its critical appraisal, the Insull scandals and the dozens of other misdeeds perpetrated under the cover of intricate corporate organizations never would have been attempted. Nor would the public have encouraged the pyramiding of false values through its own craze for speculation had its moral courage been strong enough to withstand the temptation of quick riches. Likewise, even in the present acute stage of the depression, constructive cooperation would be facilitated and unethical practices would be minimized if more business men were conducting their operations on the "basis of sobriety, simplicity and a better human understanding."

The "new deal" has great possibilities in helping to lead individual thought and action back to the safe base of sound principles. Nowhere is the need for a "new deal" greater than in the upper strata of the nation's financial and commercial circles, where misconduct under the stress of speculative hysteria has contributed to a chaotic situation that has brought misfortune to a majority of the citizens of this country.

By far the most hopeful aspect of the present emergency is the realization that past mistakes have been revealed and that the nation is evidencing its determination that they shall not be repeated. This, indeed, is an auspicious send-off for the "new deal."

*Excerpt from an address before the Boston chamber of commerce, Jan. 12, 1933.

# THE BUSINESS TREND

## Bank Crisis Dominates Business Situation

TOWERING high above all other factors that influence business is the present banking crisis, which in the three and a half weeks since Feb. 14 has spread from Michigan to many important cities of the nation. Any hope that industrial activity can advance from its current low level must be deferred until the financial skies clear.

The latest epidemic of bank trouble throws into such sharp relief the inadequacies of the entire banking system that the prospect for banking reform now is brighter than at any time in the depression. Some bankers and industrialists of the conservative school, who until recently frowned upon the idea of national guarantees of bank deposits, now are openly advocating selective or partial guarantees.

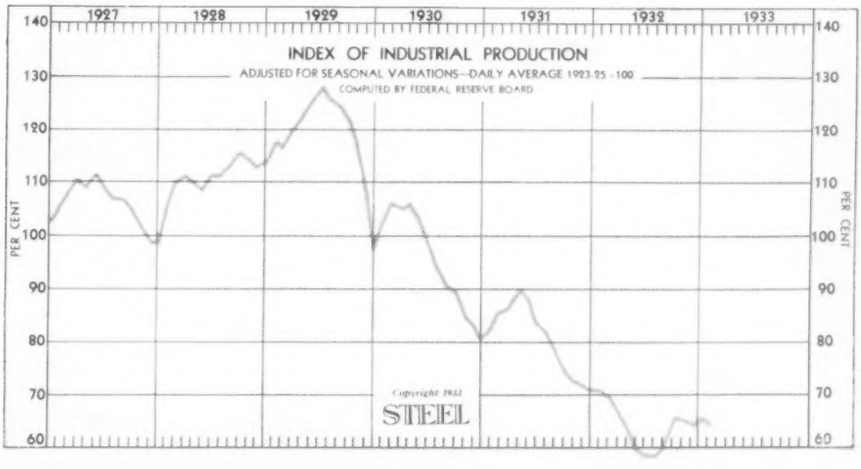
However, opinion on this issue is far from unanimous. One group believes that federal guarantees would impair government credit. Experts on the other side of the argument feel that a guarantee—issued at the right time and safeguarded by certain limitations—would buck up confidence to an extent that would reduce to government's ultimate, actual liability to an insignificant amount. In any event, the pressure for insurance in some form against losses by bank failure is stronger today than ever before.

Revelations of unbelievable misconduct by officers of the second largest bank in the United States have added fuel to the flame of demand for divorcing security affiliates from banking institutions. Legislation to effect this reform is practically certain of enactment in the near future.

### Breadth and Depth of Bank Troubles Will Force Prompt, Decisive Action

Still another problem in the financial system is the conflict between the provisions of national and state banking laws. Effective co-ordination, as reflected by the Canadian system, cannot be adopted in the United States until the state banks are more closely tied into a national set-up. This involves the so-called "branch banking" problem, which is beset with many legislative and political difficulties.

The most hopeful aspect of the present situation is that it is so acute that remedial action cannot be delayed further. The showdown will come in the next three months. Meantime industry and business generally will be handicapped severely.

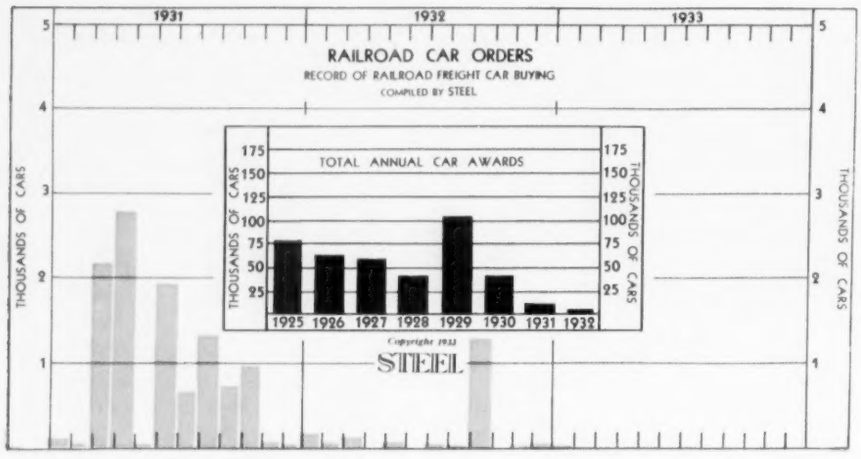



**1933**
Jan. .....64

**1932**
Dec. .....66
Nov. .....65
Oct. .....66

**1932**
Jan. .....72

**1931**
Dec. .....74
Nov. .....73
Oct. .....73

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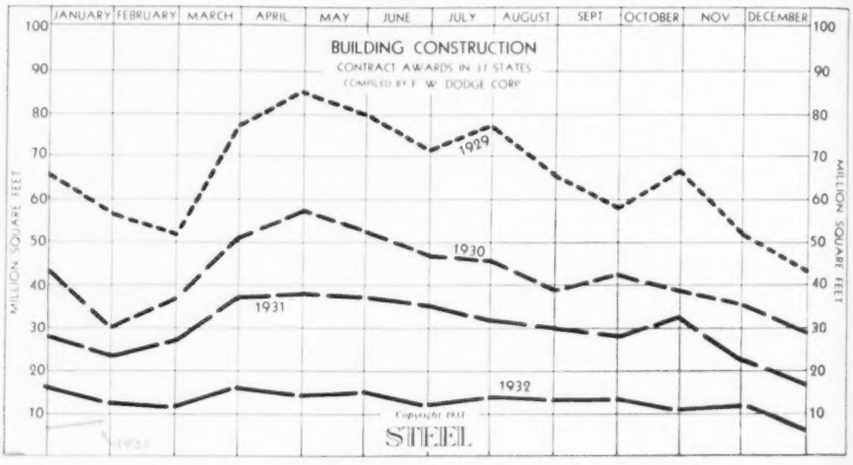
|---|---|
| January, 1933 | 3 |
| December, 1932 | 50 |
| January, 1932 | 159 |

## January Car Awards Are Near Zero Point

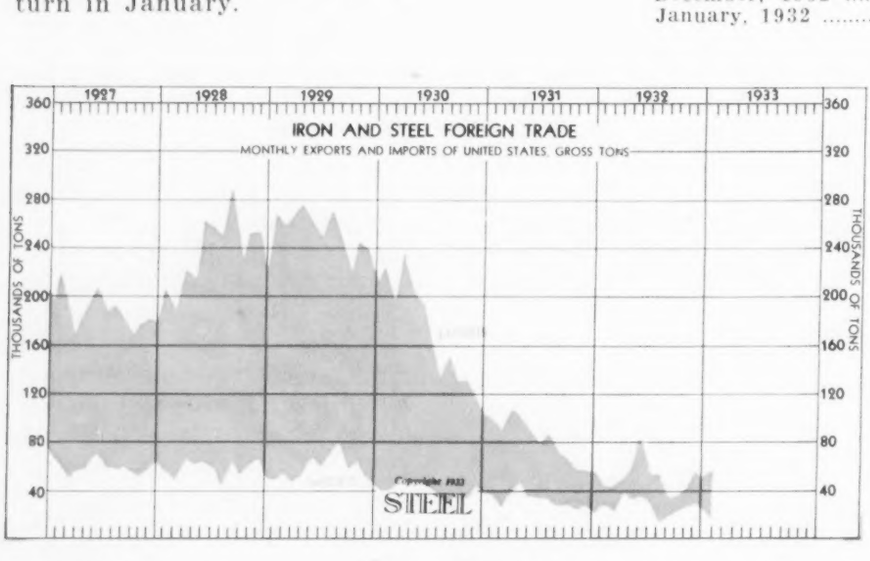
With the awarding of only three domestic freight cars for January and with the total for 1932 aggregating only 1739 cars, builders have felt keenly the long period of inactive demand for railroad rolling stock. Awards last year in January totaled 159 cars; 100 in 1931; 5072 in 1930; and 13,196 in 1929. Some carriers need cars, but purchases will not be resumed until traffic volume and the financial situation show improvement.

## Building Activity Registers Gain in January

Building activity in 37 eastern states, as measured in new floor space, gained over a million and a half square feet in January. According to reports of F. W. Dodge Corp., total construction for the first month of 1933 involved 8,452,500 square feet as compared with 6,948,700 in December and 12,600,800 square feet in January last year. Although the current figures include several unusually large self-liquidating projects this is the first time since 1928 in which there has been an upturn in January.




| | Square Feet |
|---|---|
| January, 1933 | 8,452,500 |
| December, 1932 | 6,948,700 |
| January, 1932 | 12,600,800 |


1927 1928 1929 1930 1931 1932 1933
IRON AND STEEL FOREIGN TRADE
MONTHLY EXPORTS AND IMPORTS OF UNITED STATES, GROSS TONS
THOUSANDS OF TONS
STEEL

| Exports | Tons | Imports | Tons |
|---|---|---|---|
| January, 1933 | 56,720 | January, 1933 | 21,892 |
| December, 1932 | 54,118 | December, 1932 | 29,390 |
| January, 1932 | 40,660 | January, 1932 | 31,053 |

## Iron and Steel Exports Up Sharply in January

The January export trade in iron and steel products totaling 56,720 gross tons reached the highest mark since May, 1932, and gained 16,072 tons or 40 per cent over January last year. Imports at 21,892 tons declined for the second consecutive month and were 9161 tons or 30 per cent less than in January, 1932. The decline from December, 1932, was 8500 tons. Japan continued the best market for exports in January with purchases of 24,662 tons, of which 22,614 tons were scrap.

Part I

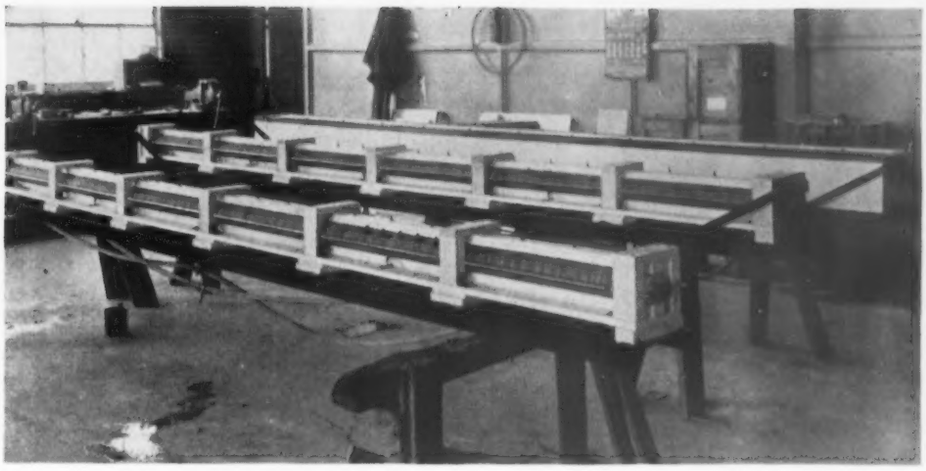


*FIG. 1—Three inductively heated muffle furnaces, before shipment, to be installed in the plant of a razor blade manufacturer. End fitting has been removed from the unit in the foreground to reveal the sectional construction*

# PRACTICAL APPLICATION OF INDUCTION HEATING TO SOLID MATERIALS

By E. F. NORTHRUP
Vice President and Technical Adviser
Ajax Electrothermic Corp., Trenton, N. J.

IN THE industries, metals and alloys of varied size and shape are regularly heated below their melting point for annealing, normalizing or forging. At some stage in their fabrication practically all metals and alloys which are not directly cast from the molten condition into final molds, require this reheating, often to but little under their melting temperature.

When electric induction heating is employed for this work it is important to consider whether the product to be heated is magnetic or nonmagnetic. If a ferrous metal or alloy is to be heated under its decalescent point, the current and equipment needed will be different, in general, from what is required when the final temperature is carried above the point where magnetism is lost. All nonferrous metals and alloys of similar form and size may be treated inductively in much the same way.

Nonferrous, nonmagnetic metals and alloys which require heating for annealing or other purposes, may be classified in respect to shape as: (1) Split round billets; (2) solid square or rectangular billets; (3) rods, round or square, in diameter 1 inch or under; (4) drawn wire of all sizes up to about ¼-inch or under; (5) sheet metal in strip which is to be heated by continuous travel through the heating device; (6) sheet metal, usually of large area, which must be heated in batches by a discontinuous process; (7) round tubes of all sizes and lengths and wall thicknesses, and tubes of square, rectangular, oval or other cross-section; and (8) masses of various sizes and irregular shapes.

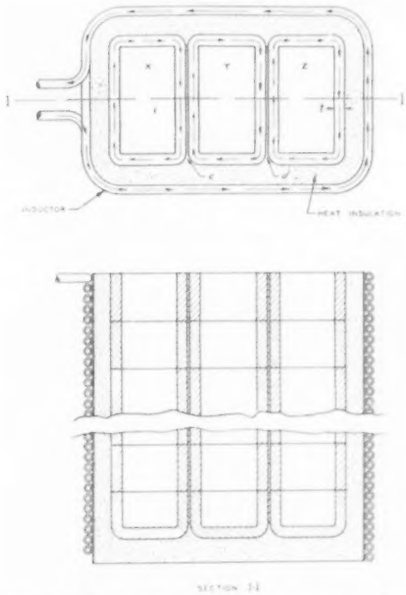


*Fig. 2—Multiple chamber arrangement of inductively heated muffle furnace.*

It is obvious that, if inductive processes of heating are to be used, the methods and devices required will vary in many respects. Yet all of the various sizes and shapes of metal listed above may be heated advantageously by making use of the principle of inductive heating.

Inductive methods of heating which may be employed commercially fall broadly into three general classes: (1) Those methods in which the heating is wholly by direct induction, by which we mean that the alternating current in an inductor develops an alternating magnetic field which acts directly on the susceptor, heating it and nothing else; (2) those methods in which the materials to be heated are placed in a muffle, the muffle

walls only being heated by induction; and (3) combination methods in which part of the heating of the susceptor is by direct induction and the remainder by heat radiated to it from the walls of a specially contrived inductively heated muffle.

That inductive methods, so meritorious for producing heat in metals of most any shape, have come, thus far, little into use in industry, is due, I believe, largely to present business conditions—in part to lack of knowledge and appreciation of what is technically possible with inductive methods and to the small consideration engineers have given to the conveniences and economics which they might effect by using induction. I cannot point, therefore, to many existing industrial installations where metals are heated, but not melted, inductively, and I am forced, therefore, to pose rather as a prophet than as an historian.

### High Frequency Required

When use of the direct inductive method is contemplated, the availability of reasonably priced frequency changing equipment first deserves attention. The tonnage to be handled in the heating of billets and tubes must be sufficient to justify the insallation of a motor-driven generator to supply current at a frequency of not less than 500 to 1000 cycles per second and in special cases as high as 5000 cycles. Current of normal frequency, 25 to 60 cycles, is not generally applicable where direct induction methods are used, and the temperatures required exceed the temperature at which magnetism is lost.

*POSSIBILITIES of induction heating in various commercial applications are disclosed in the accompanying article, the first of a series of two, abstracting a paper presented by Dr. E. F. Northrup before the Pittsburgh district section, Association of Iron & Steel Electrical Engineers, Jan. 14. The concluding installment will be published in an early issue of* STEEL.

The second consideration is technical, in that the resistivity and the least dimension of a transverse section of a solid susceptor, or shape to be heated, such as a billet, be such that the greater portion of the electromagnetic energy which flows into it becomes changed into heat.

Finally the susceptor must have a geometrical symmetry which will allow it to be placed easily within an inductor coil and in a manner to permit of a close and uniform physical coupling at all points along the greatest length of the susceptor. Billets of round or rectangular section, pipes or large diameter tubing meet these conditions, while the crankshaft of an automobile engine does not.

The simplest and often most useful form of an inductively heated muffle is one in which a tubular muffle furnace is maintained at a desired temperature by heating the tube inductively with an inductor coil which surrounds it. The tube may have any desired length and be of any cross-section—round, oval, square, rectangular or semicircular with a flat bottom. The material of the tube may be nickel-chrome, chrome steel, or even graphite when provision is made to protect the latter from oxidation. Whatever the material or form of the tube, it should be considered the susceptor on which the inductor acts.

The inductor winding is usually made to conform to the contour of the cross-sectional area of the susceptor. The space between the two is filled with any suitable highly heat insulating refractory.

The material to be heated may be placed in the muffle intermittently until it has reached the desired temperature or it may be fed steadily through the muffle. All heating of the material results from heat radiated to it from the inside wall of the muffle. It is a simple matter to maintain the heating chamber filled with a protecting gas. Wall thickness of a tubular muffle would be chosen usually from ⅛ to ¼-inch, but it may be much thicker, if desired, without appreciably altering the efficiency of the muffle heater.

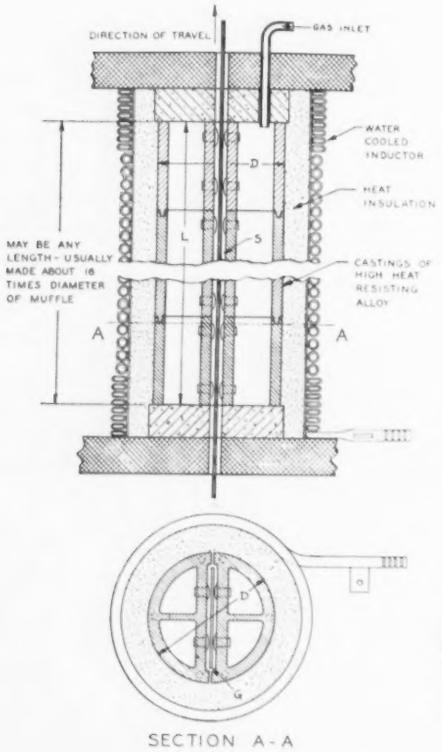
### Small Diameter Advisable

A muffle heater of this character, with heavy duty to perform should be generally not less than about 2 inches in its least outside diameter. The reason for this is that a higher frequency is required to heat a susceptor efficiently which has a small diameter than is required for one of larger diameter. The highest frequency which may be supplied economically with a generator is about 5000 cycles and an inductor type of machine is required for this.

The efficiency, uniformity of temperature, and the ease of control of temperature of an inductively heated muffle is surprisingly satisfactory. A manufacturer of razor blades has in service six inductively heated muffle furnaces which are giving entire satisfaction both from the technical and economic viewpoints. Three of these muffle heaters were photographed before shipment and are shown in Fig. 1. One of the heaters appears with one end fitting taken off to reveal the sectional construction of the muffle, and the other heaters are shown partially and entirely complete.

In the design of muffles for batch heating of a large volume of material at a time, use may be made of a most valuable method of induction. We designate this the multiple chamber method. To understand it better, refer to Fig. 2; here the susceptor is shown as made up of three hollow rectangular castings of, say, chrome steel. The number of such castings, however, may be more than three if desired.

In practice, the wall thickness, *t*, of these castings would be from 1 to 2 inches, but may be greater. In the direction vertical to the plane of the



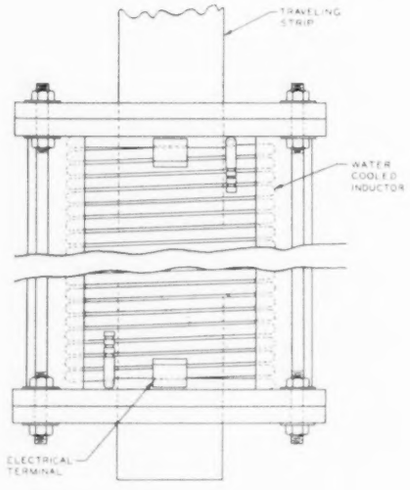




*FIG. 3—Drawing showing three views of radiation inductive sheet heater, for handling either unit lengths or continuous strip. This type of furnace as yet has not been placed in commercial use*

paper, each casting may be as long as is required to form a chamber of the desired length. A casting, however, constituting a heating chamber would not be a one-piece casting but would consist of many pieces fitted together, each piece being about 4 inches thick in the direction vertical to its plane.

This feature of the construction may be understood clearly by referring to the top view, Fig. 2, of a section on line *l-l*. The three chambers *x*, *y*, *z*, are placed close to one another, a small fraction of an inch only being allowed for electrical insulation between the sets of castings. If each pair of castings jam at *one point* only, as at point *c* or *d*, no cross currents will flow and the performance of the inductive heater will not be affected in any way. The multiple chambers thus made and placed, are surrounded with a single inductor which consists of a suitable number of turns of round flattened copper tubing. This inductor carries both water for cooling and alternating current of a suitable frequency to induce currents to the best advantage in the susceptor.

### Direct Heating Difficult

Metal in the form of a single sheet or a strip of sheet metal, especially if thin, is particularly difficult to heat by any known process of direct induction. Even if the technical difficulties become surmounted, the cost of heating sheet metal by this process would be prohibitive. The reason for this latter statement becomes apparent from the following consideration: The object, of course, in putting heat into a sheet is to raise its temperature. Now, only those calories added to a sheet which are retained in the sheet during the interval of heating are effective in raising its temperature. Sheet metal has an extremely large ratio of surface to volume. As soon as the metal sheet acquires much temperature, the heat radiated from its large surface becomes great. This radiated heat, not at all effective in raising the temperature of the sheet, is lost into space and must be supplied from the source of power. Thus to heat sheet metal with any degree of economy, it is necessary to devise means whereby the heat put into the sheet by induction or otherwise is conserved and not lost in large part into space.

Many patented processes have been proposed for heating sheet metal solely by direct induction but all of these are ineffectual from an economic standpoint for the reason stated above.

We may state the fundamental nature of the problem and the requirements which must be met for technical and economic success as follows:

1. The thinness of sheet metal requires that induced currents shall flow in plane of sheet to heat it effectively by direct induction.

2. To obtain economy in the heating of sheet metal, the heat given to the sheet must be retained, in large part, within the metal and not radiated into space.

3. Uniformity in the rate of heating of all parts of a sheet is essential to prevent warping of the metal and to bring it to a final temperature that is the same over its entire surface.

4. In the majority of cases, the sheet metal must be protected from oxidation while being treated. The treatment must be carried on in an inert atmosphere.

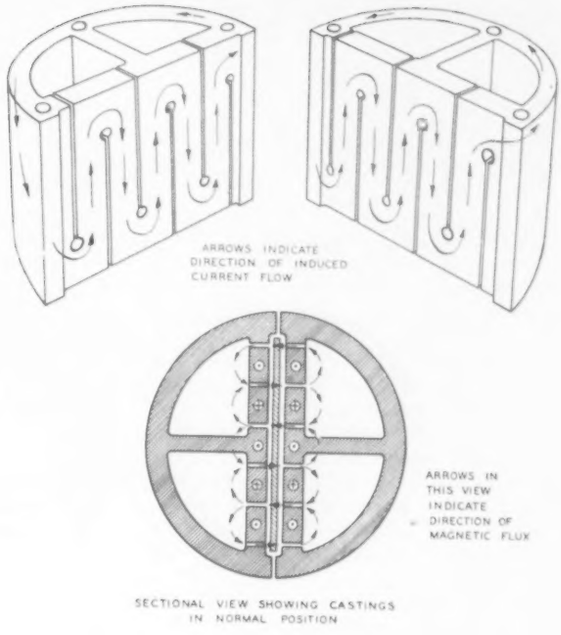

ARROWS INDICATE DIRECTION OF INDUCED CURRENT FLOW
ARROWS IN THIS VIEW INDICATE DIRECTION OF MAGNETIC FLUX
SECTIONAL VIEW SHOWING CASTINGS IN NORMAL POSITION

*FIG. 4—Modification of susceptor shown in Fig. 3, to provide partial heating by direct induction. This experimental arrangement is known as the semi-inductive sheet heater*

### Two Methods Suggested

Fulfillment of the above requirements for heating single sheets of metal or a long sheet which moves continuously through the heater is best accomplished electrically as follows:

1. By resorting to an inductively heated muffle of special design in which the sheet is heated entirely by radiation from the walls of the muffle (radiation inductive sheet heater) or

2. By employing a similar type of inductively heated muffle so modified that the sheet metal becomes heated both by radiation from the muffle walls and by induced currents made to flow in the place of the sheet (semi-inductive sheet heater).

The electrical principle involved in the radiation inductive sheet heater is similar to that employed in inductively heated muffles for batch heating. Fig. 3, displaying different views of the same device, has been prepared in a manner to make the design of this type of heater clear without adding much written description.

A heater of this type was constructed of a size to heat either unit lengths or a continuous strip of sheet metal 5 inches wide and of any thickness up to ¼-inch. Laboratory tests were made which confirmed all expectations and empirical data were obtained which will prove useful to the designer.

No radiation inductive sheet heater at the time of this writing has been placed in commercial use. The writer believes, however, that it is bound to be appreciated if given a fair trial in commercial production. The heater is equally adaptable to the heating of nonferrous and ferrous sheet metal of wide variation in width, length and thickness. It will serve to heat, one at a time, sheets of short length. Such short length sheets, shorter than the susceptor, would be quickly inserted in the slot and kept there the proper time to acquire the desired temperature and then dropped out into a quenching medium or fed into a machine.

### Small Currents in Sheet

The radiation inductive sheet heater induces only small currents in the sheet metal and these add but little to the heat recevied by the sheet from radiation. This will be understood from section *A-A*, Fig. 3, by noting that equal currents flow in opposite directions in the opposed faces of the resistors between which a sheet is passed. The tendency, therefore, of such current as is induced in the sheet is to flow directly across the opposite side in the reverse direction. In the case of a sheet that is thin, the oppositely directed voltages on the two sides of the sheet nearly neutralize. If the sheet has a thickness comparable to the depth of penetration, sufficient current may flow in a sheet of such

thickness as to add an appreciable amount of heat by so-called direct induction. However, if it is desired to have heavy currents directly induced in a sheet, matters must be so arranged that lines of induction are developed which cut the sheet at right angles to its plane. If this is done, currents will tend to flow in the sheet in its own plane. Such currents may be made large and add much heat to the sheet.

**Resistor Design Modified**

With these thoughts in mind, the writer had the flat faces of the resistors slotted in the manner shown in Fig. 4. A study of these illustrations will reveal that lines of induction are developed which pass through the loops made by the tortuous path of the currents flowing in the faces of the resistors which cut the sheets at numerous places in a direction which is, in general, vertical to its plane. These lines of induction produce numerous swirls of current in the plane of the sheet which thus becomes in part heated by direct induction.

The advantage of this modification whereby a sheet is heated partly by direct induction may not be great for increasing the rate of heating of the sheet. It is thought, however, by several experimenters that when chromium plated steel is heated to cause some of the chromium which is in contact with the steel to migrate into the steel, it is necessary to develop the heat in the steel inductively and not by radiation from without.

The process of making a coherent nonporous chromium plate on steel by high frequency induction is much in favor and is commercially applied. The application, however, has been confined to rods, tubes, large diameter hollow cylinders, etc. No attempts made by experimenters to apply this direct induction process to sheets have been successful, chiefly on account of the seeming impossibility of heating sheets by direct induction uniformly and avoid warping. The semi-inductive sheet heater described above may permit the accomplishments desired. At least, the plan proposed above, appears to the writer sufficiently promising to justify the expense of giving it a full trial.

*(To be concluded)*

# Scrap Supply for Future Assured

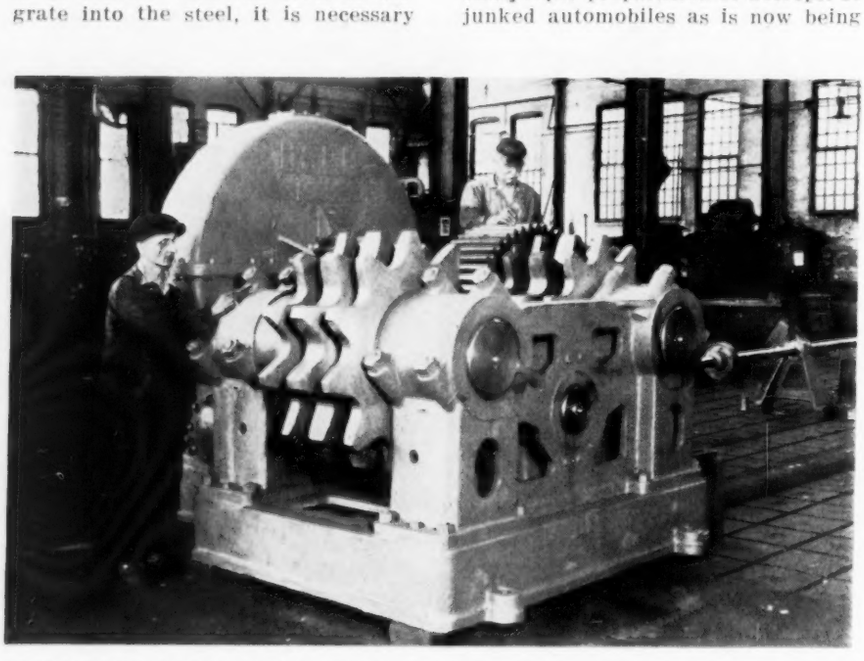
SOME 750 million tons of steel are estimated to be in use today in the United States and this indicates a great potential supply of scrap for many years to come. One way by which this scrap supply can be realized is by the systematic scrapping and proper preparation of decrepit or junked automobiles as is now being done in the Detroit and Cleveland districts.

These significant statements were made by Dr. George B. Waterhouse, professor of metallurgy, Massachusetts Institute of Technology, Cambridge, Mass., in presenting the tenth Henry Marion Howe Memorial lecture before the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, Feb. 23.

This lecture dealt with steelmaking processes. Dr. Waterhouse described briefly the main processes in use in this country, outlined the trends of these processes from the tonnage viewpoint and gave the reasons for these trends.

The basic open-hearth process is the most important from the standpoint of tonnage and has grown steadily through the years. One of the main factors in this growth is the use of scrap, which at present is the cheapest raw material in the industry.

The scrap business is of large proportions. In normal times, 200,000 people are employed in collection, preparation and classification of the material. Accurate figures compiled in the census of 1929 showed that 29½ million tons of scrap with an estimated value of 450 million dollars were used in steelmaking.



*COMPLETE HOOVER DAM SPILLWAY GATE HOISTS. Gear reduction unit at one end of the two powerful hoists built at the order of the United States bureau of reclamation to raise and lower the 50 x 35-foot, 225,000-pound Stoney gates at down-stream ends of the 50-foot diameter spillway tunnels at the Hoover Dam, Boulder Canyon project. Each of these two sets of mechanism, placed on approximate 59-foot centers, is driven by a 3-phase, 60-cycle, alternating-current motor placed midway between and driving through a horizontal shaft. The sprockets carry special chain which is fastened to each side of the gate at one end and to balancing counterweights at the other end. Total lifting capacity of each hoist is 432,000 pounds, total weight 70 tons. The hoists were built in the Scott foundry of the Reading Iron Co., Reading, Pa.*

## Improves Ore Paint for Protective Coatings

Through the medium of a new grinding process, the Eastern Mabelite Corp., 225 Mercer street, New York, has produced from its special ore a new pigment which, when mixed with any normal oil paint vehicle, provides a metal primer claimed to afford abnormal protection against atmospheric conditions and mild solutions of acid, alkalies and brines.

By taking advantage of the ore, mined in the Wichita Mountains, Comanche county, Okla., and containing a suitable conglomerate of ferric oxide, silica and alumina, and putting it through the new grinding process which more finely regulates the pigment particle size, this result has been obtained.

In practice over a period of eight months, the paint is said to have been applied successfully to metal pipe lines, tanks and concrete. The coating when applied gives a peculiar combination iron-oxide, sand-coat finish. A feature of this product, it is pointed out, is its resistance to mechanical injury. This is due to the extreme tenacity with which the coating adheres to the surface on which it is applied.

The first heat, acid and abrasion-resisting paint made from this ore and announced by the company was described in some detail in STEEL, July 11, 1932, page 28.

# IMPROVING OPEN-HEARTH FURNACE DESIGN

BY WILLIAM C. BUELL JR.

## Part IV—Mechanics of the Roof

(Twenty-Second Article of Series)

DIMENSIONS and loading diagrams essential for the development of the reaction and moment diagrams are given in Fig. 40. Similar sections are designated by the same letter and presented in Fig. 39.

The dimensions and loadings of Figs. 40A and B are similar at both sides, the only apparent difference being a slight increase of $DF_1+$ over $DF_2+$ and of the back wall weight (BW) over the front wall weight (FW). As these latter items affect the substructure and not the superstructure, they enter only into the calculations of the girders.

Although in designs C, D, E and F of Fig. 40, the horizontal forces (HF) are of the same value all other forces are unequal and unbalancing.

### Requires Careful Investigation

The cantilever reactions on the bottom crossbeams must be investigated carefully, for while with a short cantilever they are not of much importance, with a 60-inch cantilever, as in the cases of designs E and F, they are of considerable magnitude and may present a problem in their design in view of the surrounding structural limitations.

Reactions and moment diagrams based on the data of Fig. 40 are shown in Fig. 41. Important features of these diagrams are the extent to which the symmetry of the stresses and reactions are disrupted by the inclusion of the bent back buckstay and the angled roof, Figs. 41-C and D and the near return to symmetry by the inclusion of the modified back buckstay, Figs. 41-E and F, in which the principal member is perpendicular thoughout its length with an inner leg developed to support the sloping back wall and the side of the furnace bottom. This improved effect is secured by the elimination of reactions or moments of some magnitude developed in the examples of Figs. 41-C and D from the bend in the buckstays and the overturn effect of nonsymmetrical loading.

Another oustanding and enlightening feature is with respect to the reactions $RF_1$ and $RB_1$ at the top of the buckstays, cases A, C and E, having tie rods. It may be observed in Fig. 41-A that the reactions are the same at both front and back. In C the reaction is much greater at the back than at the front and consequently $RF_1$ tends to move towards the right. This is only prevented by the development of a counterforce in the masonry of the furnace front to create a resistance at $RF_1$ sufficient to neutralize the pull of $RB_1$. While experience has shown the masonry usually will meet this requirement,

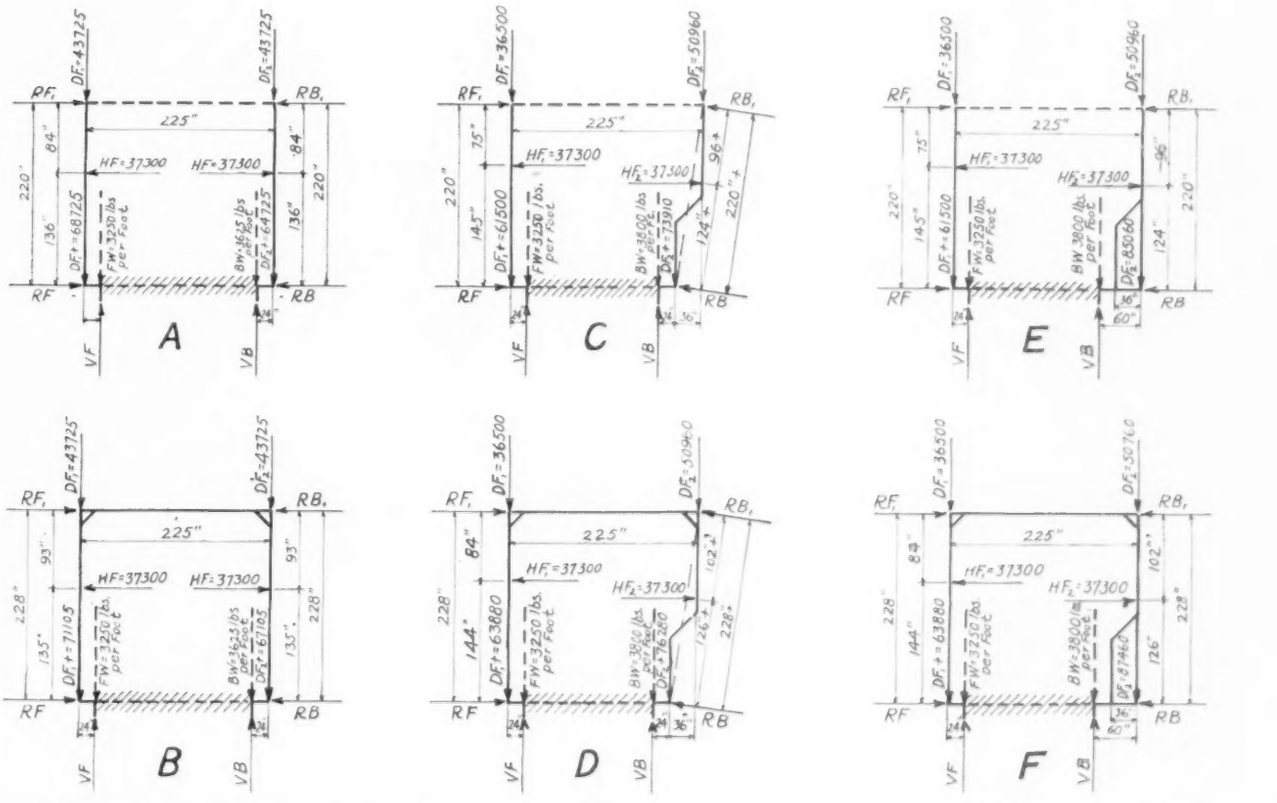



*Fig. 40—Dimensions and loading diagrams essential for the development of reaction and moment diagrams*

yet the front buckstays often are not of sufficient section to develop the counteracting moment (indeterminate both as to position and magnitude) and bends result which usually and incorrectly are ascribed to thermal effects.

In Fig. 41-E, by virtue of the design of the back buckstay the reactions at the top of the buckstays are more nearly equal with the greater at the front. While equal reactions at both buckstay tops represent the ideal condition, this particular arrangement is more favorable than the conditions of Fig. 41-C. Despite the fact that the lessening of the magnitude of the reactions is of great value, the excess value in reacting on the back wall relieves the front wall of a condition it is less able to absorb than the back wall.

### Reactions Are Replaced

In the examples B, D and F having semirigid top binding the top reactions are replaced by moments in the structural components. The relatively small moments encountered at the tops in cases B and F are reduced easily by the simple channel members ordinarily used as cross members, while the greater top moments, case D, are met by similar sections when normally reinforced by the plate corner gussets.

The reactions at the buckstay bottoms, RF and RB, are equal in examples A, B and F and unlike in the other three. While again equal reactions at these points are ideal, unequal reactions are of little importance since the bottom grillage will prove sufficiently rigid to absorb these forces.

Another set of reactions may occur in certain instances. These are the vertical reactions VF and VB found at the bottoms of the buckstays of cases D and F. These may be either plus or minus and result from stresses developed in the semirigid structures. These values are to be added, or subtracted from the weight effects at $DF_1+$ or $DF_2+$, Fig. 40. Examination of VB, Fig. 40-D discloses these reactions may be of considerable magnitude.

The moments shown extending vertically downward as a part of each diagram at the buckstay bottoms are a resultant of the cantilevered ends of the crossbeams as they extend over the bottom girders. These effects would be absent in a design omitting the crossbeams. These moments as calculated in all cases excepting the back walls, Figs. 41-E and F are developed as a simple cantilever beam with a concentrated loading at the end. The two excepted cases are considered as a simple cantilever beam with an evenly distributed loading, it being assumed that a footing to receive the buckstay ends may be designed to meet the requirements of this type of loading.

### Design Technique Changes

A few years ago steel castings, steel railroad rails, and a heterogeneous miscellany of shapes were used for buckstays of open-hearth furnaces. With the then existing relatively small roof spans, and thin, light roofs, such members served their purpose with varying degrees of success. At present, however, the employment of relatively long roof spans, heavy roofs, and the contingently greater forces to be restrained, as well as the desire of operators for bindings that will hold their original form and thus the furnace cross section to the designed lines, have caused a virtually new design technique to be developed.

*(To be continued)*

## Approves Revised Standard For Reinforcement Rods

The revised American standard on steel spiral rods for concrete reinforcement A38-1933 (Simplified practice recommendation R53-32) has been approved by the American Standards association.

This is a revision of the former American standard A38-1927, the revision consisting largely of a rearrangement of the tabular form in which certain data are presented, and the removal to tables in an appendix of other data now given for informational purposes. The revision has been accepted by industry under the procedure of the division of simplified practice of the bureau of standards as a revision to simplified practice recommendation R53-26.

The bureau of standards and Concrete Reinforcing Steel institute are joint sponsors for the project under the procedure of the American Standards association.

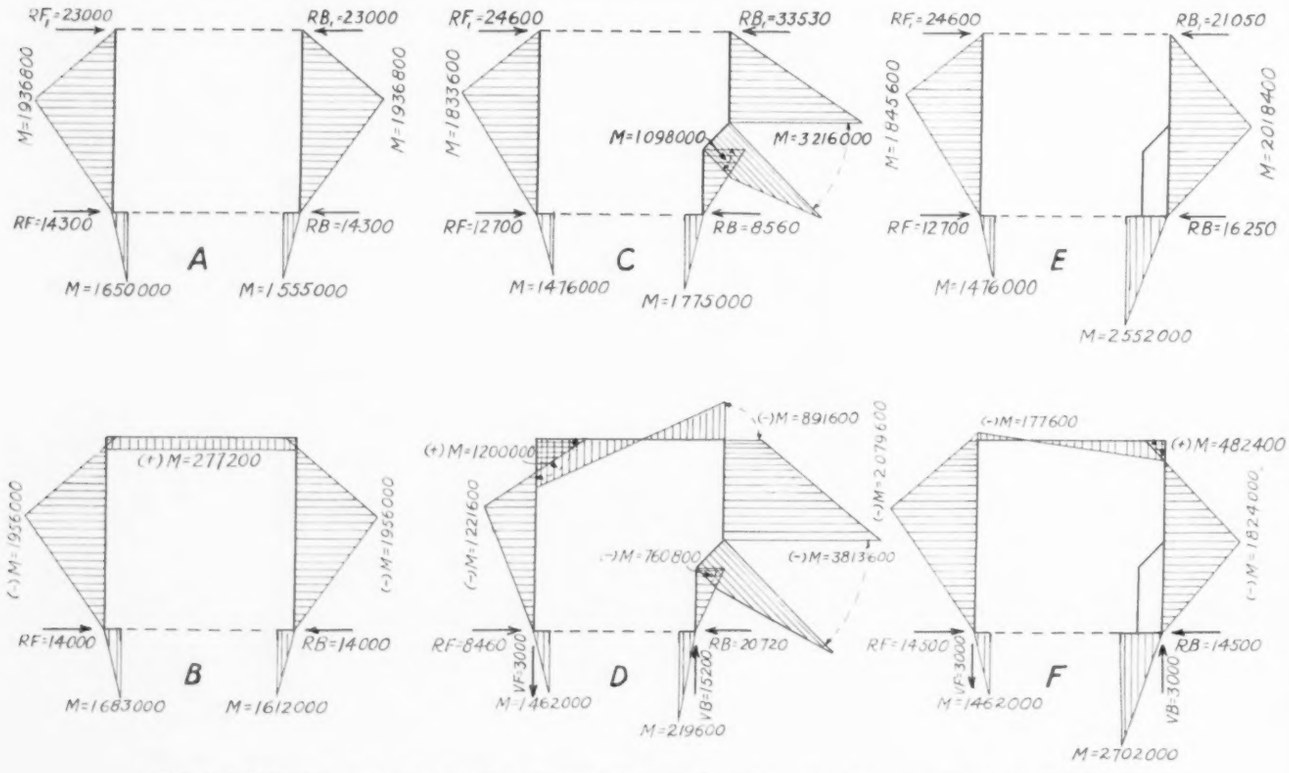



*Fig. 41—Reaction and moment diagrams which are based on the data presented in Fig. 40*

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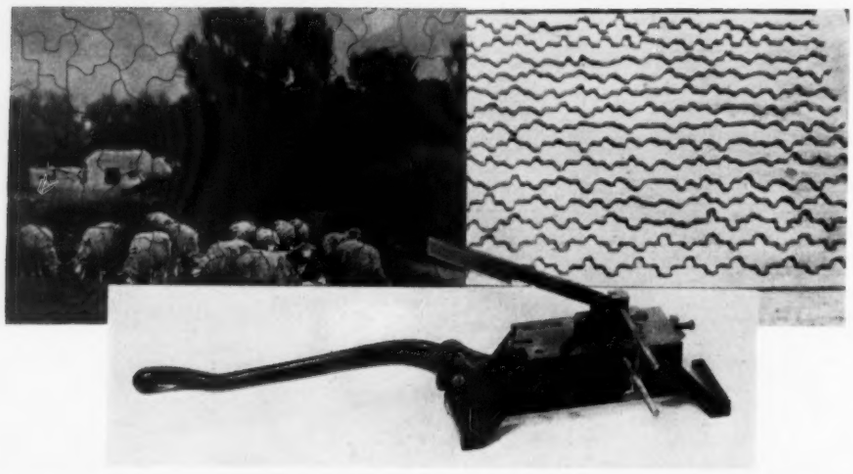

*Steel rules with cutting edge are bent to shape in a small press, such as illustrated, and mounted in a wood block, this forming the die for stamping out puzzle pictures. The rules generally are cut and bent partly or entirely around the segments; though sometimes a "one-way" die, shown above, is used, this necessitating two stamping operations. The spaces between the rules are fitted with sponge rubber, so that when the pressure from the stamping press is released the rubber expands and forces the carboard off the die*

# LARGE USES OF STEEL IN SMALL WAYS

238th Article ◆ Picture Puzzles

FADS may come and fads may go, but rarely does their existence fail to bring some business to steel manufacturers. A worthy successor to the miniature golf craze that swept the country in 1930 has presented itself in picture puzzles. After several decades of obscurity or moderate popularity, the production and distribution of such puzzles has developed in a few months to "big business" proportions. A considerable amount of steel is required for the dies, presses and saws used in their manufacture.

The true "jig-saw" is cut out of plywood, somtimes in as many as 2000 pieces; output being limited by the slow, intricate sawing operation and relatively high cost. It was not until the introduction of the cardboard variety, stamped out on a mass-production basis, that the idea attained its real success.

### Outgrowth of Premium Idea

Incidentally, the boom was developed—picture puzzles were made to solve retail toothbrush and toothpaste sales puzzles—by the old expedient of giving something of value as a premium, somewhat like the 13th bun in the baker's dozen. Now there are hundreds of puzzle manufacturers, some of them engaged in the business as a side-line; thousands who otherwise would be idle have been given employment. Toy and game makers, lithographers and printers, especially those specializing on cardboard show-window pictures, have been the chief beneficiaries.

As regards steel, undoubtedly the largest tonnage is being consumed in the form of presses—presses that are pounding away night and day to supply the demand for puzzles. Some press builders report they have had difficulty in filling orders. But the crest of the "craze" evidently has been reached, or passed, as some of those contemplating the manufacture of puzzles, sensing the instability of the business, now are seeking to lease presses, instead of buying them.

### Sharpened Rules Used in Dies

Steel strips called rules, are used in making the dies for stamping out the puzzles. An eastern manufacturer, long engaged in making rules, after a thorough study of the subject recently estimated for STEEL that approximately 240 tons of steel has been employed for this purpose.

There does not seem to be any standard method of making the dies, many of them being improvised by printers and publishers with some knowledge as to how dies are made for cutting out cardboard boxes and other forms.

One of the common practices is as follows: The puzzle design is sketched on wood, the segments then being sawed apart, the width of the saw being about the width of the steel rule. The steel rule is cut to proper length, and bent to fit partly or wholly around each segment. The segment, separated by the rule, are then squeezed tightly together in a printer's form, or sometimes nailed on another wood block before being placed in the form.

### Not Cut Clear Through

Each sketch line runs clear across from side to side, and from top to bottom, though in irregular paths. Therefore, there are really four sides to each segment. The short, curved lengths of rule, where they butt one another are not joined solidly. The result is that when the cardboard is cut, the segments cling together at these joints, and so facilitate the handling of them, until they are purposely broken apart and packed. Examination of the cardboard segments will show these little corner points where the die did not cut.

The spaces between the rules are fitted with sponge rubber, or cork, the surfaces extending slightly above the rules. This is so that when the die is lifted the compressed rubber or cork frees it from the cardboard. Though special presses are built for this kind of stamping, in some instances even idle cylinder printing presses have been put to work, the die being used similar to an ordinary type metal printing form. Some of the special presses take four or more dies; makers have tried to cut two or more cardboard sheets superposed upon one another with one die at one time.

### Die Good for 100,000

The manufacturer of steel rules alluded to has been giving users considerable advice as the kind of rules, thickness, and heighth most suitable for the purpose. It has found that a medium hard temper rule will give the necessary bends for ordinary puzzles of 200 to 300 pieces, and the usual length of life of a die made from such material is 90,000 to 100,000 impressions, depending upon the kind of cardboard used. The thickness of the rule generally is "2 points"—a printer's "point" being 1/72-inch. The cutting edge is a ⅛-inch double, double bevel. The rule is 1 inch high, though rules slightly less than this in height frequently are used.

The largest manufacturers estimate that 3,000,000 puzzles now are being made weekly. At the peak probably 5,000,000 were made, though estimates ran as high as 15,000,000. A few month's ago the national mail order houses and five and ten-cent stores were unable to purchase all the puzzles they could sell; recently they reported supply equal to demand.

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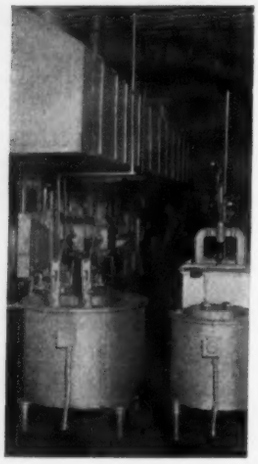
LARGEST SINGLE CONTRIBUTOR TO IMPROVEMENTS IN EQUIPMENT FOR IRON AND STEEL INDUSTRY

# *Making the Most of*



# METHODS AND MATERIALS

PLANTS having lineshaft drive usually are overmotored under present operating conditions. Some instances of this discovered recently in a midwestern city are of interest. In one, two 15-horsepower motors were driving two fan systems. One fan was enough, therefore the two ducts were connected, saving 15 horsepower, connected. In another, 30-horsepower and 25-horsepower motors were driving two lineshafts The shafts were belted together, saving 30 horsepower connected. Three 10-horsepower motors were driving three lineshafts in another plant The shafts were tied together and driven by one 10-horsepower motor, saving 20 horsepower, connected. In a fourth plant, one 100-horsepower motor was driving a lineshaft. The line was split and two 30-horsepower motors now carry the load, saving 40 horsepower, connected. In still another case, two 40-horsepower motors were driving two lineshafts with an actual load of 5 horsepower per shaft. The shafts were belted together and driven by a 15-horsepower motor, saving 65 horsepower, connected.

$ $ $

A manufacturer of outboard engines has adopted the practice of chromium plating the cast-iron cylinders in these engines with the result that scoring is reduced greatly.

$ $ $

AN ELECTRICAL manufacturer recently was faced with a problem in connection with equipment for boring and facing a bronze bushing in a small cylinder head. To maintain daily quota on one part under old methods, the company was confronted with the necessity of installing several new machine tools, the cost of which would have equaled that of one automatic boring machine finally purchased. Production on existing equipment was 11 per hour, two machine units operating 22 hours per day. The new machine stepped up production to 40 an hour, and relieved three operators for other work. With the old method, it was necessary to use reamers to obtain the desired quality of finish and within the size limit of 0.0003 inch. The new boring machine eliminated the reaming operation and, therefore, considerable expense. The saving made on this one part would have justified the purchase of the machine, however, two additional pieces of the assembly are processed with this part simultaneously, thus making a considerable additional saving.

$ $ $

Nickel serves a useful role in nitriding steels. Its principal benefits are in its strengthening and toughening effects upon the nitrided case, its strengthening and hardening effects upon the core by which to provide better support to the case, and its development of dispersion hardening phenomena in steels containing appreciable proportions of aluminum by which an automatic increase in core strength and elastic properties is obtained during the nitriding cycle. As a result of these effects, nickel may be added in varying and regulated proportions to nitriding steels to control the toughness-hardness relations of the case and core, and provide a wide range of properties to meet varied service requirements.

$ $ $

A new development, which it is said will prove of great advantage in rock drilling consists of a demountable drill head of practical design made of forged carbon or alloy steel faced with stellite. In rock of moderate hardness this demountable attachment has drilled with a single grinding from 5 to 12 times more than standard drill steel.

$ $ $

Locomotive piston rings usually are made of ordinary gray iron. It has been found that much longer life can be obtained by the addition of 0.50 per cent chromium and 0.75 per cent nickel to an iron containing 1.75 to 2.00 per cent silicon. Iron of this analysis offers good machinability and at the same time offers wear resisting properties.

$ $ $

EFFECT of welding upon the corrosion-fatigue limit of a low-carbon steel is not deleterious except in the case of the bare-wire arc welded specimens, it is reported by two investigators. It is possible that the corrosion-fatigue limit of the arc welded specimens might be higher with a better quality weld. This conclusion is in direct contrast with the results obtained in the fatigue in air studies of similar welded material where in all cases the fatigue limit of the unwelded material was very considerably lowered with the presence of a weld.

$ $ $

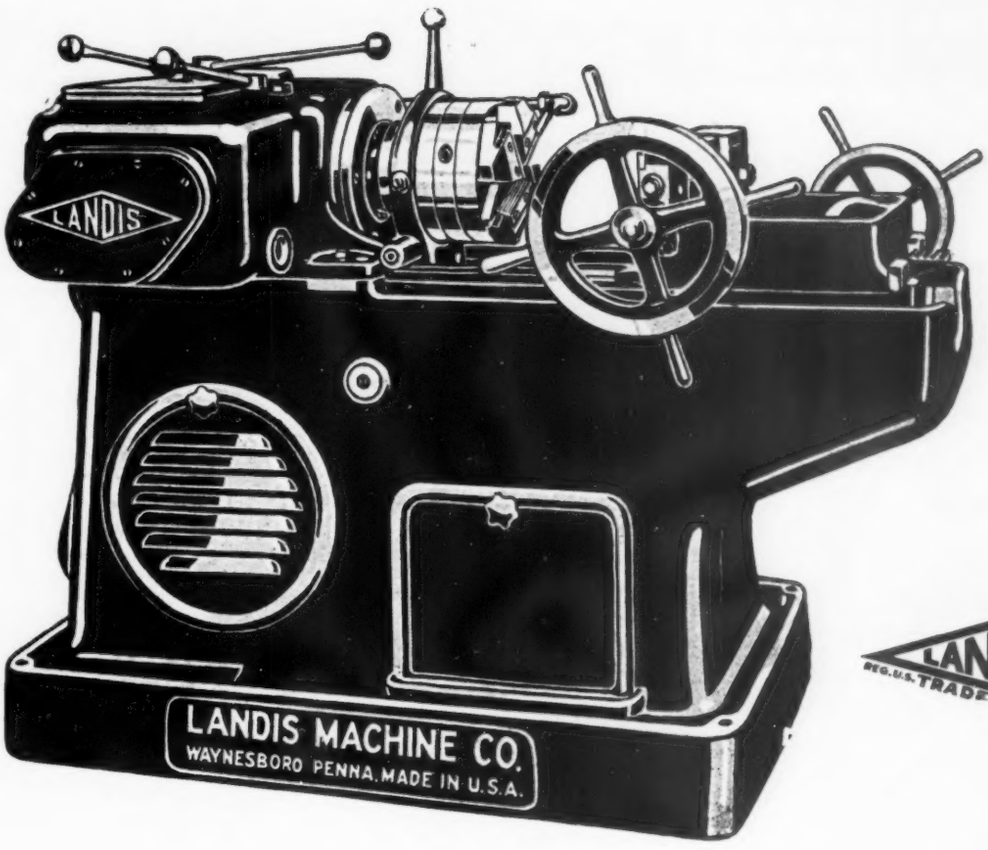
By applying ample power to modern grinding machines, it is possible to remove metal quickly. With 5 horsepower applied to the wheel spindle of a precision cylindrical grinder of either the centerless or controlled center type, cast iron or steel can be removed at a rate of 0.5 cubic inch per inch. For each additional 5 horsepower an additional 0.5 cubic inch can be removed, thus with 40 horsepower 4 cubic inches of metal may be taken off in 1 minute.

$ $ $

When a wire rope becomes pitted from the action of corrosion, its elasticity is reduced; its ability to absorb impact and sudden shock made very uncertain, and the possibility of broken wires developing rapidly between normal inspection periods is increased. The best insurance against loss of production through breakdown is a spare rope. While in storage, this should be kept well lubricated, inside and out.

# LANDMACO

## — the precision threader.

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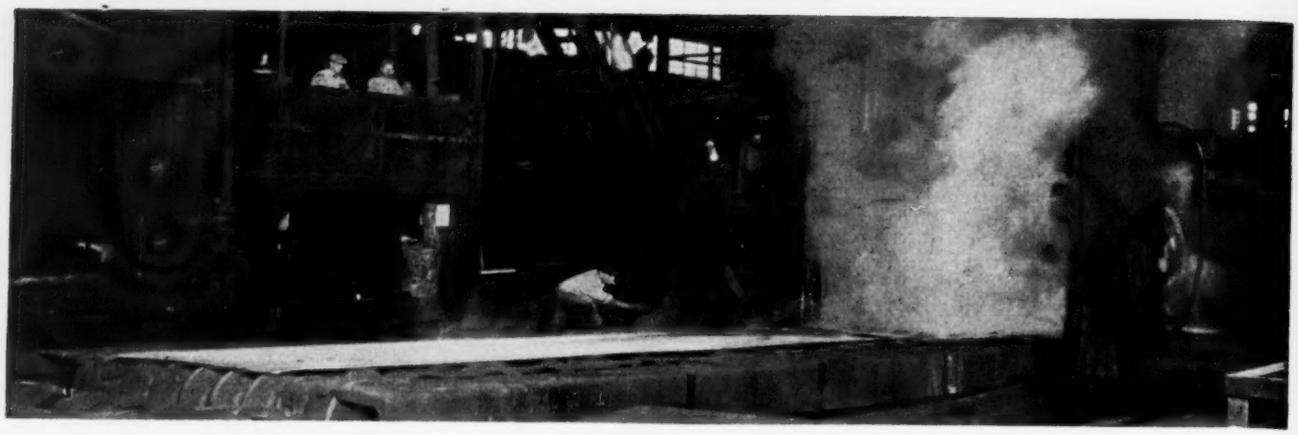
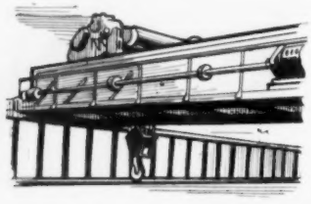


# PROGRESS IN STEELMAKING

LARGE steel bars now can be bent without having to be turned over to make the reverse second bends by a recently developed 4-way bending machine. After making the first hook of 180-degree hook bars, the bending member is in position to form a second hook merely by switching the resistance roller to the opposite side.

♦ ♦ ♦

Softening points of clays used in the notches of blast furnaces and open hearths now may be determined by the use of a recently marketed pot furnace. The new unit fully meets the requirements of the pyrometer cone equivalent test.



PURCHASING crane cable in equal lengths and reeving them direct from the reel on the hoisting drums is the practice followed at an Ohio steelworks. This procedure prevents the cables becoming contaminated with dirt which otherwise occurs when they are unreeled, laid on the ground and then wound on the crane drums.

♦ ♦ ♦

Gas-fired immersion heaters which essentially are gas burners firing into a submerged refractory-lined combustion chamber, also submerged, have been developed for heating galvanizing baths. While the burners cannot be used directly in the molten metal because of the tendency of the zinc to alloy with the coil and fittings, a method has been devised whereby the galvanizing kettle is carried in a lead bath which maintains the molten zinc at the proper temperature for galvanizing. This arrangement is claimed to effect a saving in fuel and to extend the life of the galvanizing kettle.

♦ ♦ ♦

Changing a 6000-pound direct-arc electric furnace to a 1200-pound unit recently was effected at a midwestern plant by installing a false roof, using smaller electrodes and altering the transformer equipment. This afforded the melting of smaller heats and resulted in a saving of several thousand dollars in the power demand charge.

♦ ♦ ♦

Ability to absorb 47 times its volume of oxygen and having four times the capacity of pyrogallic acid are features of an oxygen absorber developed for gas analysis equipment. The new chemical is described as a stable, alkaline solution and is claimed to work with such speed that two passes of the sample through the absorption chamber suffices to remove the last trace of oxygen.

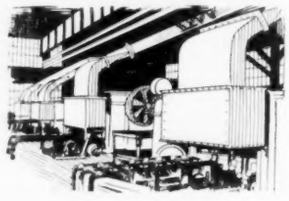
♦ ♦ ♦

Photoelectric relays have replaced mechanical flag switches on two hot sheet mill installations equipped with mechanical feeder and catcher tables. The application of the electronic device provides an unobstructed path on the table for the pack being rolled and eliminates the troublesome flexible electrical connections between the table and stationary parts.

INVESTIGATION made in England of irons used for ingot molds discloses that the thermal conductivity increases during the life of the molds, because of the heat treating or annealing influence of the molten steel on the material.

♦ ♦ ♦

Compression, tension and transverse bending tests now may be made with a recently developed machine which employs a hydraulic press for applying the force. The latter is measured after being transmitted through the test piece. The unit is built with double reversible dials on the dynamometer to increase the capacity range and a graphic recorder to chart the pressure trend at every stage of the test and breaking point.



DIFFUSION combustion, in which the air and gas are made to travel in parallel formation adjacent to each other without turbulence, is gaining favor in the sheet industry. This method of firing prevents the sheets sticking together and permits a good surface finish to be imparted by subsequent rolling, even in cases of poor pack furnace construction. The free carbon in the furnace atmosphere offsets the oxidizing condition of a certain amount of air infiltration which in a nonluminous type of pack furnace would result in scaling the surface of the packs.

♦ ♦ ♦

Nonmetallic laminated bearings may be applied to roll stands where the operating pressures of the rolls is not in excess of 2500 pounds per square inch and the spindle speed is higher than 100 feet per minute.

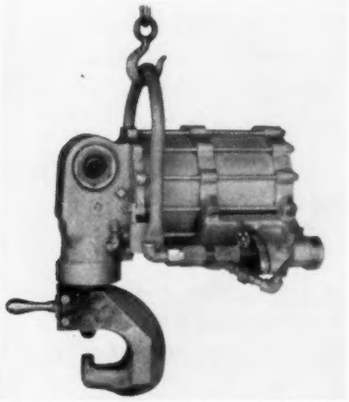
# NEW EQUIPMENT

## PRODUCTION FABRICATION TREATMENT FINISHING

### Riveter Is Light and Compact For Portable Use

Hanna Engineering Works, 1765 Elston avenue, Chicago, recently developed a yoke-type compression riveter, in the construction of which aluminum alloy castings have been used extensively. Other major parts are either alloy steel forgings or castings. The unit, shown in the accompanying illustration, weighs 170 pounds and develops 15 tons between the dies. This tonnage is said to be sufficient for heading 5/16-inch diameter cold rivets. Mechanism is enclosed entirely. The yoke may be swiveled 360 degrees upon the die axis and is quickly removable for interchange with yokes of different shape, reach and gap.

When suspended from a balancer



*Hanna yoke riveter mechanism operates in oil bath*

carried by a crane, the riveter may be moved easily and quickly from one rivet to another, though these may be spaced some distance apart.

◆

### Vise Cuts Square Ends on Thin-Wall Tubing

Borden Co., Warren, O., has placed on the market a square-end sawing vise for cutting thin-wall copper or brass tubing. The unit, shown herewith, is made of aluminum with steel inserts to increase strength. All sizes of tubing from ⅛ to 2-inch, are locked quickly into position by means of a reversible vise block. A thumb screw prevents over-pressure and crushing. Long V-trough insures accurate centering and a saw guide

*Square-end sawing vise for tubing, manufactured by Borden Co.*

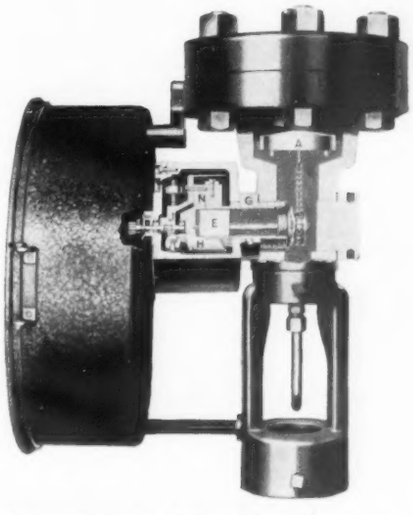
prevents the blade from "running." A strip of cotton webbing and a piece of rosin are included for use when cutting polished nickel tubing.

◆

### New Flow Meters Embody A Magnetic Clutch

C. J. Tagliabue Mfg. Co., Park and Nostrand avenues, Brooklyn, N. Y., recently developed a line of flow meters embodying a new magnetic clutch. Use of a clutch of this type enables location of all internal parts so that they are immersed in the mercury and protected by it against moisture, dirt and corrosion. By the almost total elimination of friction regardless of the pressure being handled, increased accuracy has been achieved. A unit is shown herewith.

When the float moves the rotor



*Internal parts of Tagliabue flow meter are immersed in mercury*

turns instantly; when the rotor turns the steel magnets turn exactly the same amount because the rotor and magnets are locked together by a magnetic field. The rotor turns in a closed-end cylinder of non-magnetic stainless steel. Magnets outside this cylinder are mounted on antifriction bearings and transmit the movement to the pen.

◆

### Portable Lamp Has Reel of Cord Concealed in Base

Appleton Electric Co., 1701-29 Wellington avenue, Chicago, recently brought out a portable lamp for use in the shop. Concealed in the base of the unit is a reel with 15

*Appleton lamp being used to illuminate work on grinder*

feet of rubber covered cord which makes it possible to move it about without changing the connection with the light circuit. The half reflector and socket are attached to a flexible arm which in turn is mounted on a pipe that can be raised or lowered to any practical height. Equipment also includes a fitting having a duplex receptacle so that the lamp may be plugged into this receptacle to illuminate a grinder or other electrically-operated tool as shown herewith, without the necessity of running another wire to some distant outlet.

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and
Strip Steel Sheets
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Single Pickled, Full Finished
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are now available
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# Bank Limit Cuts Steel Rate to 15 Per Cent

## Embargoes Check New Purchasing, Though Early Clearing of Situation Is Expected—February Continues Gain in Daily Pig Iron Production

WITH bank holidays and restrictions in many states tending to paralyze trade, and industry marking time until after the inauguration for further definition of the new administration's business policies, iron and steel demand was approaching a standstill during the past week.

Though order cancellations thus far have been comparatively light, shipments continuing to consumers with favorable credit ratings, a notable lack of new purchasing reflects the inability of the majority of consumers to finance operations on 5 per cent or less of their cash capital. This situation has reduced steel ingot production 2 more points to 15 per cent.

Among steelmakers the belief prevails that the very sharpness of the banking stringency carries with it some assurance that it will be speedily remedied, if necessary by federal guarantees of bank deposits. Some efforts now are being made to induce banks to modify their limitations for the withdrawal of funds to finance material purchases.

As automotive manufacture has been the only outstanding industry recently in steel consumption, the effect appears relatively more serious in that direction than elsewhere. Some sheet and strip mills operating almost exclusively on automotive specifications were practically idle during the week; steel bar releases are down 50 per cent; nut and bolt orders off more than 25 per cent.

A further substantial gain in pig iron production in February carried the daily average output to 19,752 gross tons, up 7.6 per cent from January, though the month's total, due to the fewer number of days, was only 553,067 tons, compared with 568,785 tons. A net loss of one stack, in the merchant class, left 44 in blast at the close of February. The operating rate for the month was 14 per cent; for January, 13.

Action on finished steel prices indicates there will be no widespread revisions for second quarter, but stronger efforts to steady the market at present levels. Leading sheetmakers have put in effect new schedules, which show little change, except an advance of $1 a ton in hot-rolled and a reduction of $1 in heavy cold-rolled. Large railroad spikes have been marked down $5 a ton, relaying rails $1 to $4 a ton. Wire rod and wire prices have been reaffirmed.

The market for structural shapes, with awards for the week 9800 tons, presents an unbalanced appearance, the small number of jobs being either at the bottom or top of the range in tonnage, and the flow of medium-size projects notably lacking. For the New York Central's New York warehouse terminal 2250 tons of concrete bars have been placed; 2250 tons of shapes have been awarded for a Reading railroad bridge at Rupert, Pa.; 2600 tons for a naval hospital at Philadelphia.

The Pennsylvania railroad will issue an inquiry shortly for 10,000 to 15,000 tons of miscellaneous steel requirements for second quarter. Rail inquiries are in abeyance. Utilities and municipalities are delaying pipe purchases, though additional loans by the R. F. C. are adding considerably to the tonnage to be released for public construction in the spring. Tank purchases by two oil refining companies require 3400 tons of plates.

Pig iron sales are down sharply, due to inability of many small foundries to finance purchases. A merchant stack in the Pittsburgh district has been banked. Italy has made another purchase of 10,000 tons of scrap.

STEEL's finished steel composite this week is up 20 cents to $45.60, and the iron and steel composite is up 4 cents to $28.35, mainly on sheet price adjustments. The scrap composite has advanced 8 cents to $6.41, due to strengthening in open-hearth grades at Pittsburgh.

## Composite Market Averages

| | March 4 | Feb. 25 | One Month Ago Feb., 1933 | Three Months Ago Dec., 1932 | One Year Ago March, 1932 | Ten Years Ago March, 1923 |
|---|---|---|---|---|---|---|
| Iron and Steel Composite | $28.35 | $28.31 | $28.31 | $28.93 | $29.61 | $45.31 |
| Finished Steel Composite | 45.60 | 45.40 | 45.35 | 46.74 | 47.09 | 64.40 |
| Steelworks Scrap Composite | 6.41 | 6.33 | 6.33 | 6.41 | 7.94 | 23.80 |

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

# COMPARATIVE PRICES OF IRON, STEEL AND COKE

**Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago**

| | Mar. 4, 1933 | Feb. 1933 | Dec. 1932 | Mar. 1932 |
|---|---|---|---|---|
| **Pig Iron** | | | | |
| Bessemer, del., Pittsburgh | $15.76 | 15.76 | 15.76 | 16.76 |
| Basic, valley | 14.00 | 14.00 | 14.00 | 15.00 |
| Basic, eastern, del. eastern Pa. | 13.50 | 13.50 | 13.50 | 16.00 |
| No. 2 foundry, del. Pittsburgh | 15.76 | 15.76 | 15.76 | 16.51 |
| No. 2 foundry, Chicago | 15.50 | 15.50 | 15.50 | 16.50 |
| *Southern No. 2, Birmingham | 11.00 | 11.00 | 11.00 | 11.00 |
| **No. 2X, Virginia furnace | 17.75 | 17.75 | 17.75 | 18.00 |
| **No. 2 X, Eastern, del., Phila. | 13.76 | 13.76 | 13.95 | 15.76 |
| Malleable, valley | 14.50 | 14.50 | 14.50 | 15.50 |
| Malleable, Chicago | 15.50 | 15.50 | 15.50 | 16.50 |
| Lake Superior charcoal, del. Chi. | 23.04 | 23.04 | 23.04 | 23.04 |
| Gray forge, del. Pittsburgh | 15.63 | 15.63 | 15.63 | 16.13 |
| Ferromanganese, del. Pittsburgh | 73.24 | 73.24 | 73.24 | 80.24 |

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

| | | | | |
|---|---|---|---|---|
| **Coke** | | | | |
| Connellsville, furnace, ovens | 1.75 | 1.75 | 1.75 | 2.25 |
| Connellsville, foundry, ovens | 2.25 | 2.50 | 2.50 | 3.25 |
| **Semifinished Material** | | | | |
| Sheet bars, open-hearth, Youngs. | 26.00 | 26.00 | 26.00 | 26.00 |
| Sheet bars, open-hearth, Pitts. | 26.00 | 26.00 | 26.00 | 26.00 |
| Billets, open-hearth, Pittsburgh | 26.00 | 26.00 | 26.00 | 27.00 |
| Wire rods, Pittsburgh | 35.00 | 35.00 | 37.00 | 37.00 |

| | Mar. 4, 1933 | Feb. 1933 | Dec. 1932 | Mar. 1932 |
|---|---|---|---|---|
| **Finished Material** | | | | |
| Steel bars, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.55 |
| Steel bars, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Steel bars, Philadelphia | 1.91 | 1.91 | 1.91 | 1.81 |
| Iron bars, Chicago | 1.65 | 1.65 | 1.65 | 1.70 |
| Shapes, Pittsburgh | 1.60 | 1.60 | 1.55 | 1.55 |
| Shapes, Philadelphia | 1.65 | 1.70 | 1.75 | 1.62 |
| Shapes, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Tank plates, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.55 |
| Tank plates, Philadelphia | 1.59½ | 1.66 | 1.77 | 1.69½ |
| Tank plates, Chicago | 1.70 | 1.70 | 1.70 | 1.70 |
| Sheets, No. 10 blue anneal., Pitts. | 1.55 | 1.60 | 1.70 | 1.70 |
| Sheets, No. 24, hot ann., Pitts. | 2.00 | 2.00 | 2.10 | 2.20 |
| Sheets, No. 24 galvan., Pitts. | 2.60 | 2.50 | 2.85 | 2.80 |
| Sheets, No. 10 blue anneal., Chi. | 1.70 | 1.85 | 1.85 | 1.85 |
| Sheets, No. 24 hot ann., Chicago | 2.15 | 2.15 | 2.25 | 2.35 |
| Sheets, No. 24 galvan., Chicago | 2.75 | 2.75 | 2.90 | 3.00 |
| Plain wire, Pittsburgh | 2.10 | 2.10 | 2.20 | 2.20 |
| Wire nails, Pittsburgh | 1.85 | 1.85 | 1.95 | 1.95 |
| Tin plate, per base box, Pitts. | 4.25 | 4.25 | 4.25 | 4.75 |
| **Scrap** | | | | |
| Heavy melting steel, Pitts. | $8.50 | 8.35 | 8.70 | 10.25 |
| Heavy melting steel, eastern Pa. | 6.50 | 6.50 | 7.25 | 7.35 |
| Heavy melting steel, Chicago | 5.25 | 5.25 | 5.45 | 6.75 |
| No. 1 wrought, eastern Pa. | 6.50 | 6.50 | 7.25 | 9.00 |
| No. 1 wrought, Chicago | 5.00 | 5.00 | 5.05 | 6.25 |
| Rails for rolling, Chicago | 7.75 | 7.75 | 8.25 | 9.50 |

# Sheets

**New Price Schedule for Second Quarter—Buying Is Light as Bank Facilities Shrink**

SHEET PRICES, PAGE 37

**Pittsburgh**—Effective immediately and for second quarter business, sheet prices have been announced at the following minimums: No. 24 gage hot-rolled annealed sheets, 2.00c, Pittsburgh; galvanized, 2.60c; cold-rolled, 1.90c for No. 10 gage and 2.30c for No. 20 gage; No. 10 gage hot-rolled, 1.40c; No. 10 blue annealed, 1.55c.

**Boston**—Sheet prices are steadier but demand is dull. A small lot of blue annealed for the Watertown Mass., arsenal has been awarded to a New York distributor at 2.90c, delivered.

**New York**—Sheet business is light, with efforts to stabilize prices untested on spot business. Most sellers of galvanized sheets are holding fairly steady at 2.60c, Pittsburgh.

**Philadelphia**—Sheet mills generally are following the lead of the American Sheet & Tin Plate Co. in announcing new price schedules, the same as that interest, though no test is expected until quarterly contracts are renewed. Business is quiet.

**Philadelphia**—Sheet buying is so small as to make prices nominal and no test is likely prior to the renewal of contracts at the end of this quarter.

**Cleveland**—Sheet capacity here was practically idle for the greater part of last week, due to a decline in specifications from the automotive industry. Another nearby lake mill, which was operating until recently at approximately 50 per cent, was down to 10 to 15 per cent. A few automotive releases were received in the latter part of the week. Motor car manufacturers have been hit hard by the restrictions placed on bank withdrawals in many states. A few small orders have been placed by refrigerator manufacturers. Sellers are adopting the price schedules announced by the leading maker. No. 10 hot-rolled annealed, however, have not generally replaced No. 24 as the base for black sheets, some sellers continuing to quote the latter at 2.00c, Pittsburgh. A maker of a special grade of galvanized sheets has reduced its price on this material $10 a ton.

**Cincinnati**—Demand for sheets from mills in this district tends downward. The banking situation, especially as it may affect the ultimate consumer, took precedence in market discussion over possible, immediate effects of the new administration at Washington.

**Chicago**—Sheet producers are following the lead of the American Sheet & Tin Plate Co. in announcing new sheet prices effective immediately and on second quarter business. Revisions also have been announced on certain width extras. Hot-rolled annealed sheets are quoted 2.10c, base, with galvanized 2.70c and cold-rolled material 2.00c for No. 10 gage and 2.40c for No. 20 gage. Business is quiet and off moderately since a few weeks ago. Impairment of banking facilities in several states is adding difficulty to mills. Automotive requirements are declining. Mill operations are lower at 15 to 20 per cent.

**St. Louis**—Some branches of the general manufacturing trade are expanding operations and are expected to be in the sheet market shortly. Sentiment generally is a little more hopeful and the building industry is expected to expand over the next two months. Thus far the local bank situations have had no effect. Progress is being made in stabilizing prices. Second quarter inquiry has not yet appeared.

**Birmingham, Ala.**—Keeping close to demand, sheet mills are not having to maintain a very active pace.

# CURRENT FINISHED STEEL PRICES

*Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week*

## Sheet Steel

HOT ROLLED No. 10

(24 to 48 inches wide)

| | |
|---|---|
| *Pittsburgh, base | 1.40c |
| *Chi. dist. mills | 1.50c |
| *Chicago, del. | 1.55c |
| New York, del. | 1.75c to 1.85c |
| Birmingham, base | 1.60c to 1.70c |
| Philadelphia, del. | 1.71c to 1.81c |

BLUE ANNEALED No. 9-10

| | |
|---|---|
| *Pittsburgh, base | 1.55c |
| *Chi. dist. mills | 1.65c |
| *Chicago, del. | 1.70c |
| Phila., del. | 1.86c to 1.96c |
| New York, del. | 1.90c to 2.00c |
| St. Louis, del. | 2.04c |
| Birmingham, base | 1.75c to 1.85c |
| San Fran., c.i.f. | 2.32½c |

HOT ROLLED ANNEALED No. 24

| | |
|---|---|
| *Pittsburgh, base | 2.00c |
| Chi. dist. mills | 2.10c |
| Chicago, del. | 2.15c |
| New York, del. | 2.30c to 2.35c |
| Phila., del. | 2.26c to 2.31c |
| Birmingham, base | 2.15c to 2.25c |
| St. Louis, del. | 2.34c to 2.44c |
| San Fran., c.i.f. | 2.85c |
| Detroit, del. | 2.18½c |

GALVANIZED No. 24

| | |
|---|---|
| *Pittsburgh, base | 2.60c |
| *Chi. dist. mills | 2.70c |
| *Chicago, del. | 2.75c |
| Philadelhia, del. | 2.91c |
| New York, del. | 2.95c |
| Birmingham, base | 2.70c to 2.80c |
| St. Louis, del. | 2.94c |
| San Fran., c.i.f. | 3.50c |

AUTOBODY No. 20

| | |
|---|---|
| Pittsburgh, base | 2.45c |

FURNITURE

| | |
|---|---|
| Pitts., No. 10 h'vy | 2.40c to 2.50c |
| Pitts., No. 20 light | 2.90c to 3.00c |

TIN MILL BLACK No. 28

| | |
|---|---|
| Pittsburgh, base | 2.30c |
| Gary, base | 2.40c |
| St. Louis, del. | 2.59c |

HEAVY COLD ROLLED No. 10

| | |
|---|---|
| Pittsburgh, base | 1.90c |
| *Chi. dist. mills | 2.00c |
| *Chicago, del. | 2.05c |
| Philadelphia, del. | 2.11c to 2.16c |
| New York, del. | 2.15c to 2.20c |

COLD ROLLED No. 20

| | |
|---|---|
| Pittsburgh, base | 2.30c |
| *Chi. dist. mills | 2.40c |
| *Chicago, del. | 2.50c |
| Philadelphia, del. | 2.56c to 2.61c |
| New York, del. | 2.65c |

## Corrosion, Heat Resistant Alloys

Base, Pittsburgh

18% chrome, 8% nickel sheets, 35c; plates, 31c; bars, 28c.

| | A | B | C | D |
|---|---|---|---|---|
| Bars | 19c | 20.5c | 23c | 28c |
| Plates | 21c | 22.5c | 25c | 30c |
| Sheets | 26c | 27.5c | 30c | 35c |
| Hot Strip | 19c | 20.5c | 23c | 28c |
| Cold Strip | 25c | 26.5c | 29c | 34c |

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

## Steel Plates

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| New York, del. | 1.70c to 1.80c |
| Phila., del. | 1.59½c to 1.69½c |
| Boston, del. | 1.82c to 2.02c |
| Buffalo, del. | 1.85½c |
| Chicago, base | 1.70c |
| Cleveland, del. | 1.78½c |
| Birmingham, base | 1.75c |
| Coatesville, base | 1.50c to 1.60c |
| Pacific Coast, c.i.f. | 2.00c |
| St. Louis, del. | 1.94c |

## Structural Shapes

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| Philadelphia, del. | 1.65c to 1.75c |
| New York, del. | 1.77c to 1.87c |
| Boston, del. | 1.90½c to 2.00½c |
| Chicago, base | 1.70c |
| Cleveland, del. | 1.78½c |
| Lackawan., base | 1.70c |
| Birmingham, base | 1.75c |
| Pacific Coast, c.i.f. | 2.10c |
| Do., wide flange | 2.20c |

## Bars

SOFT STEEL

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| Chicago, base | 1.70c |
| Birmingham, base | 1.75c |
| Lackawan., base | 1.70c |
| Pacific Coast, c.i.f. | 2.00c |
| Cleveland, base | 1.65c |
| Philadelphia, del. | 1.91c |
| New York, del. | 1.95c |
| Boston, del. | 2.02c |
| Pitts., cold finish | 1.70c |
| Pitts., forg. qual. | 1.75c and 1.85c |
| San Fran., c.i.f. | 2.10c |

RAIL STEEL

| | |
|---|---|
| *Pitts., Buff., Chi. St. Louis | 1.50c |
| Eastern mills | 1.30c |

IRON

| | |
|---|---|
| Chicago, base | 1.60c to 1.65c |
| New York, del. | 1.85c to 1.90c |
| Philadelphia, del. | 1.81c to 1.86c |
| Pitts., refined | 2.70c to 4.20c |

REINFORCING

| | |
|---|---|
| Billet, mill f'gths. Chi., Pitts., Buff. | 1.40c |
| Do Cleveland | 1.45c |
| Do Detroit | 1.60c |
| *Chicago, rail steel | 1.30c |
| Phila., cut lengths | 1.91c |

## Wire Products

(Prices apply on carload lots. Mixed carloads 10 cents higher with 10% discount off extras; joint carloads 10 cents higher with no discount from extras; pool carloads 20 cents up; less carloads 30 cents up.)

F.o.b. mills, 100 lb. keg

| | |
|---|---|
| Standard wire nails | $1.85 |
| Cement coated nails | 1.85 |
| Galvanized nails | 3.35 |

(Per pound)

| | |
|---|---|
| Polished staples | 2.55c |
| Galvanized fence staples | 2.80c |
| Barbed wire, gal. | 2.35c |
| Annealed fence wire | 2.25c |
| Galvanized wire | 2.60c |
| Woven wire fencing (base column, c.l.) | $50.00 |

(To Manufacturing Trade)

| | |
|---|---|
| Plain wire, 6-9 ga. | 2.10c |
| Spring wire | 3.10c |

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

## Cold-Finished Bars, Shafting

Base Pitts., one size, shape, grade, shipment at one time to one destination

| | |
|---|---|
| 10,000 to 19,999 lbs. | 1.70c |
| 20,000 to 59,999 lbs. | 1.65c |
| 6,000 to 99,999 lbs. | 1.60c |
| 100,000 lbs. and over | 1.57½c |

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c.

## Tin and Terne Plate

Per 100-lb. box, Pittsburgh

| | |
|---|---|
| Tin plate, coke base, contract | $4.25 |
| Do., stock | 3.75 |
| *Long ternes, No. 24 unassorted | 2.75c |

Gary base, 10 cents higher.

## Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base 2.45c to 2.65c. Differentials to various classes of consumers.

| Alloy | Diff. | Alloy | Diff. |
|---|---|---|---|
| S.A.E. | | S.A.E. | |
| 2000 | 0.25 | 3100 | 0.55 |
| 2100 | 0.55 | 3200 | 1.35 |
| 2300 | 1.50 | 3300 | 3.30 |
| 2500 | 2.25 | 3400 | 3.20 |
| 4100 .15 to .25 Mo. | | | 0.50 |
| 4600 .20 to .30 Mo. 1.25-1.75 Ni. | | | 1.05 |
| 5100 .80-1.10 Cr. | | | 0.45 |
| 5100 Cr. spring | | | 0.20 |
| 6100 bars | | | 1.20 |
| 6100 spring | | | 0.95 |
| Cr., Ni., Van. | | | 1.50 |
| Carbon van. | | | 0.95 |
| 9250 (flats) | | | 0.25 |
| 9250 (rds., sq.) | | | 0.50 |

## Strip, Hoops, Bands

| | |
|---|---|
| Hot-rolled strip up to 23 15/16-in. wide, Pitts. | 1.45c |
| Do., Chicago | 1.55c |
| Do., del. Phila. | 1.76c |
| Do., del. N. Y. | 1.80c |
| Cooperage hoop, Pittsburgh | 1.55c to 1.60c |
| Do., Chicago | 1.65c to 1.70c |
| Cold roll. strip, Pitts., Cleve. | 1.80c to 2.00c |
| Worcester, 3 tons or over | 2.10c |

## Rails, Track Material

| | |
|---|---|
| Stand. rails, mill | $40.00 |
| Relaying rails, Pitts., 20-45 lbs. | $20.00 to 22.00 |
| 50 to 75 | $16.00 to 18.00 |
| 80 to 100 | $20.00 to 21.00 |
| Light rails, 25-45, mills | $30.00 |
| Light rails, Chi. | $32.00 |
| Angle bars, mills | 2.55c |
| *Spikes, R.R., mills | 2.15c |
| Spikes, boat, b'ge, Pitts. | 2.65c |
| Track bolts, Chi. | 3.50c |
| Do., stand., job. | 73 off list |
| Tie plates, Pitts. | $35.00 |
| Tie plates, Chi. | $35.00 |

## Rivets, Wrought Washers

| | |
|---|---|
| Struc., c.l., Pitts.-Cleve. | 2.25c |
| Struc., c.l., Chi. | 2.35c |
| 7/16-in. & smaller, Pitts., Chi., Cleve. | 70, 10 and 10 off |
| Washers, c.l., Pitts. dist. | 6.50 to 6.75 off |
| Do., Chi. dist. | 7.00 to 6.75 off |

## Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to Dec. 1, 1932, lists.

CARRIAGE BOLTS

| | |
|---|---|
| All sizes, cut thread | 75 off |
| Rolled thread ½ x 6 and smaller | 75 off |
| Eagle list | 75 off |

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off

Tire bolts ..... 60 and 10 off

Stove bolts, 75, 25 and 10 off in pkgs.; 86 off in bulk, 5000 or more of a size.

Rolled thread machine bolts, ½ x 6 and smaller 75 off.

NUTS

| | |
|---|---|
| Semifinished | 75 off |

HEXAGON CAP SCREWS

| | |
|---|---|
| Milled | 80-25 off |
| Upset 1-in. diam., smaller | 80-25-10 off |

SQUARE HEAD SET SCREWS

| | |
|---|---|
| Upset, 1-in., smaller | 75-10-10 off |
| Headless set screws | 75-10 off |
| Upset, larger than 1-in. | 75-10 off |

## Cut Nails, Piling

| | |
|---|---|
| Cut nails, c.l., Pitts. | $2.50 |
| Do., less carloads, 5 kegs or over | $2.90 |
| Less than 5 kegs | $3.05 |
| Steel sheet piling, Pitts. | 1.90c |

# Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

## Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel

| In. | Blk. | Gal. |
|---|---|---|
| ¼ and ⅜ | 57 | 34 |
| ½ | 62 | 49½ |
| ¾ | 65½ | 55 |
| 1—3 | 67½ | 57 |

Iron

| | | |
|---|---|---|
| ½ | 28 | 10½ |
| ¾ | 33 | 16½ |
| 1—1¼ | 36 | 20½ |
| 2 | 38 | 21 |

LAP WELD

Steel

| | | |
|---|---|---|
| 2 | 61 | 50½ |
| 2½ to 6 | 64½ | 54 |
| 8 | 62 | 51 |
| 10 | 60 | 49 |
| 12 | 59 | 48 |

Iron

| | | |
|---|---|---|
| 2 | 26 | 12½ |
| 2½—3½ | 33 | 18½ |
| 4—6 | 35 | 22 |
| 7—8 | 34 | 21½ |
| 9—12 | 31 | 16½ |

(*Please turn to next page*)

### STEEL LINE PIPE

Steel

| | |
|---|---|
| 2 to 3 butt | 66½ |
| 2 lap | 60 |
| 10 lap | 59 |

Iron

| | |
|---|---|
| 2½ to 6 lap | 63½ |
| 8 lap | 61 |
| 12 lap | 58 |

Discounts on steel and iron pipe are net.

### BOILER TUBES

*Carload discounts, f.o.b. Pittsburgh*

| *Lap Welded Steel* | | *Charcoal Iron* | |
|---|---|---|---|
| 2—2¼ | 38 | 1¾ | 8 |
| 2½—2¾ | 46 | 2—2¼ | 13 |
| 3 | 52 | 2½—2¾ | 16 |
| 3¼—3¾ | 54 | 3 | 17 |
| 4 | 57 | 3¾—3½ | 18 |
| 1½—6 | 46 | 4 | 20 |
| 1½ | 1 | 4½ | 21 |

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts same as for hot rolled, below. Charcoal Iron—Under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

### STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

| | | | |
|---|---|---|---|
| 1 inch | 61 | 3 | 46 |
| 1¼—1½ | 53 | 3¼—3½ | 48 |
| 1¾ | 37 | 4 | 51 |
| 2—2¼ | 32 | 4½, 5, 6 | 40 |
| 2½—2¾ | 40 | | |

HOT ROLLED

| | | | |
|---|---|---|---|
| 2—2¼ | 38 | 3¼—3½ | 54 |
| 2½—2¾ | 46 | 4 | 57 |
| 3 | 52 | 4½, 5, 6 | 46 |

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Tubing

*Cold drawn; f.o.b. mill discounts*

Random lengths over 5 ft...55%
Selected lengths, 1—18 ft....53%

## Cast Iron Water Pipe

*Class B Pipe—Per Net Ton*

| | |
|---|---|
| 6-in. & over, Birm. | $32.00-33.00 |
| 4-in. Birm. | 35.00-36.00 |
| 4-in. Chicago | 43.40-44.40 |
| 6 to 24-in. Chicago | 40.40-41.40 |
| 6-in. & over, N. Y. | 32.00-34.50 |
| 4-in. New York | 34.50-36.50 |

Class A pipe $3 higher than Class B.

Stand. fitgs., Birm. base...$90.00

Six to 24-inch, fittings, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

# RAW MATERIAL PRICES

*Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4, 1932. Asterisk denotes price change this week*

## Pig Iron

*Per Gross Ton*

FOUNDRY, No. 2

| | |
|---|---|
| Chicago, furnace | $15.50 |
| Pitts., dist. fur. | 15.00 |
| Pittsburgh, del. | 15.63-16.13 |
| Valley furnace | 14.50-15.00 |
| Cleve. fur., local del. | 15.00 |
| Philadelphia, del. | 13.26-13.76 |
| Virginia furnace | 17.25 |
| Granite City, Ill., furnace | 16.50-17.50 |
| Buff., fur., local del. | 16.00 |
| Buff., all-rail, Bost. | 18.91-19.91 |
| Buffalo, all-rail, Brooklyn | 18.90 |
| Buffalo, all-rail, Newark | 17.28 |
| Ala., Bir. fur., local del. | 11.00 |
| Ala., Nor. del., Bir. base | 10.00 |
| Ala., del. Chicago | 16.01 |
| Ala., del. St. Louis | 14.42 |
| Ala., del. Cincinnati | 13.82 |
| Ala., Phila., dock del. | 15.00-15.25 |
| Ala., Balt., dock del. | 15.00 |
| Ala., N. Y. dock | 15.50 |
| Ala., Bost. dock del. | 15.75-16.75 |
| Tenn., Bir. base, local del. | 13.00 |
| Tenn., del. Cinci. | 13.82 |
| Montreal, del. | 23.00-23.50 |
| Toronto, del. | 22.10 |

FOUNDRY, No. 2X

| | |
|---|---|
| Buff., fur., local del. | 16.50 |
| Buff., all-rail, Brook. | 19.40 |
| Buff., all rail Newark | 17.78 |
| Buff., all-rail, Bost. | 19.91-20.91 |
| Virginia furnace | 17.75 |
| Eastern, del. Phila. | 13.76-14.26 |

FOUNDRY, No. 1X

| | |
|---|---|
| Buff. fur., loc. del. | 17.50 |
| Eastern, del. Phila. | 14.26-14.76 |

MALLEABLE

| | |
|---|---|
| Valley furnace | 14.50-15.00 |
| Cleve. fur., loc. del. | 15.00 |
| Pittsburgh dis. fur. | 15.00 |
| Pittsburgh, del. | 15.63-16.13 |
| Chicago, furnace | 15.50 |
| Buff., fur., loc. del. | 16.50 |
| Eastern Pa., del. | 14.63-18.91 |
| Granite City, fur. | 16.50-17.50 |
| Montreal, del. | 24.00 |
| Toronto, delivered | 22.60 |

BASIC

| | |
|---|---|
| Pitts., dist. fur. | 14.00 |
| Pittsburgh, del. | 14.63-15.13 |
| Eastern, Pa., del. | 13.50 |
| Buff. fur., loc. del. | 15.50-16.00 |
| Montreal, del. | 23.50 |
| Valley, furnace | 14.00 |

BESSEMER

| | |
|---|---|
| Valley furnace | 14.50-15.00 |
| Pittsburgh, fur. | 15.00 |
| Pittsburgh, del. | 15.63-16.13 |

LOW PHOS.

| | |
|---|---|
| Valley, fur. stand. | 25.00 |
| Phila., standard | 22.76-25.79 |
| Copper bear., E. Pa. furnace | 20.50-21.50 |

GRAY FORGE

| | |
|---|---|
| Valley furnace | 14.00 |
| Pitts. dist. fur. | 15.00 |
| Pittsburgh, del. | 15.63-16.13 |

CHARCOAL

| | |
|---|---|
| Lake Sup., del. Chi. | 23.04 |

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

## Iron Ore

LAKE SUPERIOR ORE

*Gross ton, 51½%, Lower Lake Ports*

| | |
|---|---|
| Old range bess. | $4.80 |
| Mesabi bessemer | 4.65 |
| Old range nonbess. | 4.65 |
| Mesabi nonbess. | 4.50 |
| High phosphorus | 4.40 |

EASERN LOCAL ORES

*Cents per unit delivered at Eastern Pennsylvania, New Jersey furnaces (Nominal)*

| | |
|---|---|
| Foundry and basic, 56-63%, contract | 7.50 |
| Copper-free low phos. 58-65% | nom. |

FOREIGN ORE

*Cents per units, alongside docks Atlantic ports (Nominal)*

| | |
|---|---|
| Foreign manganiferous ore, 45-55% iron, 6-10% man. | 8.00 |
| No. Afr. low phos. | 7.00 |
| Swedish basic, 65% | 7.50- 8.00 |
| Swedish low phos. | 8.00 |
| Spanish, No. Afr. basic, 50 to 60% | 7.00 |
| *Tungsten, spot, sh. ton unit, duty pd. | $9.65- 9.90 |
| Newfoundland fdy., 55% | 7.00 |
| Chrome ore, 48% gross ton c.i.f. | $15.50-16.50 |

## Manganese Ore

*(Nominal)*

Prices, not including duty, cents per unit, cargo lots.

| | |
|---|---|
| Caucasian, 52-55% | nominal |
| So. African, 52% | 18 to 19 cts. |
| So. Afr., 49-51% | nominal |
| So. Afr., 44-47% | nominal |
| Indian, 48-50% | nominal |
| Brazilian, 46-48% | 17 cts. |

## Semifinished Steel

*Prices Per Gross Ton*

BILLETS AND BLOOMS

*4 x 4-inch base*

| | |
|---|---|
| Pittsburgh, O. H. | $26.00 |
| Pittsburgh, bess. | 26.00 |
| Youngstown | 26.00 |
| Cleveland | 26.00 |
| Philadelphia | 31.75 |
| Chicago | 26.00 |
| Forging, Chicago | 31.00 |
| Forging, Pitts. | 31.00 |
| Forging, Phila. | 35.75 |

SHEET BARS

| | |
|---|---|
| Pittsburgh | 26.00 |
| Youngstown | 26.00 |
| Cleveland | 26.00 |
| Chicago | 28.00 |

SLABS

| | |
|---|---|
| Pittsburgh | 26.00 |
| Youngstown | 26.00 |
| Cleveland | 26.00 |

WIRE RODS

| | |
|---|---|
| Pitts., Cleveland | $35.00 |
| Chicago | 36.00 |

SKELP

| | |
|---|---|
| All grades, Pitts. | 1.50c-1.60c |

## Refractories

FIRE CLAY BRICK

*Per 1000 f.o.b. Works*

*First Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md., Ga., Ala. | $35.00 |
| Missouri | 32.00 |

*Second Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md. | 25.00-30.00 |
| Missouri | 26.00 |
| Georgia, Alabama | 30.00 |

SILICA BRICK

| | |
|---|---|
| Pennsylvania | $35.00 |
| Joliet, E. Chicago | 47.00 |
| Birmingham, Ala. | 50.00 |

MAGNESITE BRICK

*Per Net Ton*

| | |
|---|---|
| Burned, 9 x 4½ x 2½ | $61.50 |
| Unburned, 9 x 4½ x 2½ | 52.00 |

CHROME BRICK

*Per Net Ton*

| | |
|---|---|
| F.o.b. ship. point | $42.50 |

MAGNESITE

| | |
|---|---|
| Dead burned grain, net ton, Chester, Pa., or Baltimore bases | 38.00 |
| Domes, Chewelah, Wash., base | 20.90 |

## Coke

*Prices Per Net Ton*

BEEHIVE OVENS

| | |
|---|---|
| Connellsville fur. | $1.75 |
| Connellsville fdry. | 2.25- 2.50 |
| Connell. prem. fdry. | 4.00- 4.25 |
| New River fdry. | 6.00 |
| Wise county fdry. | 4.25- 5.00 |
| Wise county fur. | 3.50- 4.25 |

BY-PRODUCT FOUNDRY

| | |
|---|---|
| Newark, N. J., del. | 8.21- 8.81 |
| Chi. ov., outside del. | 7.00 |
| Chicago, del. | 7.75 |
| New England, del. | 10.00 |
| St. Louis, del. | 7.75 |
| Birmingham, ovens | 4.00 |
| Indianapolis, del. | 7.75 |
| Ashland, Ky., ovens, Connell., basis | 4.50 |
| Portsmouth, O., ovens, Connell., basis | 4.50 |
| Buffalo, ovens | 7.50- 8.00 |
| Detroit, ovens | 8.00 |
| Philadelphia, del. | 8.50 |

## Ferroalloys

*(In dollars, except Ferrochrome)*

| | |
|---|---|
| Ferromanganese, 78-82% tidewater, duty pd. (con.) | $68.00 |
| do., (spot) | 61.00 |
| Ferromanganese, del. Pitts., (con.) | 73.24 |
| do (spot) | 66.24 |
| Spiegeleisen, 19-20%, domestic fur. spot† | 24.00 |
| Ferrosilicon, 50%, freight all., c.l. | 74.50 |
| Do, less carload | 82.50 |
| Do, 75 per cent | 120-130.00 |

Spot, $5 a ton higher.

| | |
|---|---|
| Silicomang., 2½% carb. | 85.00 |
| 2% carbon | 90.00 |
| 1% carbon | 100.00 |
| Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del. | 9.50 |

# Bars

**Light Buying Rules as Most Users Delay—Second Quarter Prices Not Yet Discussed**

BAR PRICES, PAGE 37

**Chicago**—Soft steel bar specifications are lighter, principally as a result of lower demand from most automotive interests. While Ford requirements are increasing, the tendency in consumption elsewhere generally is downward. Recent financial troubles are ascribed as a leading factor in reversing the previous trend in activity, although some cessation in automotive operations had been anticipated. While orders from miscellaneous bar users have been fairly steady, improvement is absent. Farm implement manufacturers continue inactive while road machinery builders face a rather unfavorable outlook as a result of prospective curtailment in road building activities. Soft steel bars are 1.70c, Chicago, with rail steel 1.50c and bar iron 1.60c on larger lots.

**New York**—Demand for commercial steel bars is steady but consumers are buying in small lots. The price of 1.60c, Pittsburgh, is holding well.

**Philadelphia**—Demand for steel bars is quiet, with the market generally firm at 1.60c, Pittsburgh.

**Pittsburgh**—No second quarter price announcement on merchant steel bars has been made but indications point to continuation of 1.60c, Pittsburgh. Forging bars, alloy bars and merchant bars to the automotive trade have fallen off the past week, due to unsettled conditions in Detroit. The alloy bar base is holding.

**Cleveland**—Limitations on bank withdrawals here and in nearby districts have operated to check business, and in some directions efforts are being made to modify the restrictions where money is required for the purchase of materials. The effect has been especially noticeable in purchases of steel by the automotive industry, automotive production having been reduced. Specifications from Michigan builders are off considerably, and in other directions show no improvement. Commercial steel bars are steady at 1.65c, base, Cleveland.

## Cold-Finished Buying Off Sharply by All Users

Cold Finished Prices, Page 37

**Pittsburgh**—March begins inauspiciously with cold-finished bar producers having entered little new tonnage last week. The curtailment in buying is keenly felt in Michigan and Ohio points where means of payment have largely eliminated the small buyer from the market and greatly curtailed purchases of larger automotive concerns. Though February for some cold-finished bar makers showed a slight increase in shipments as against January, there is no distinct trend. The base price continues 1.70c, Pittsburgh, for 5 to 10-ton lots of cold-finished bars.

**Philadelphia**—Edgecombe Steel Co., Philadelphia, is low bidder on 75 tons of cold-finished steel for Frankford arsenal.

## Tin Plate Rate Steady; Terne Price Is Adjusted

Tin Plate Prices, Page 37

**Pittsburgh**—Unassorted long ternes were named last week at 2.75c, Pittsburgh, minimum for current business and second quarter. There has been no change in coke base tin plate, which continues $4.25 per 100-pound box. Tin mill black was named recently at a minimum of 2.30c, Pittsburgh. Tin mill operations are moving along largely in keeping with week-to-week specifications, as the policy of producing for stock on the part of some producers seems diminished. The average rate of operations continues 45 per cent.

# Plates

**Oil Tank Work Brings Fair Tonnage to Mills—Barge Takes Small Lot—Buying Is Slow**

PLATE PRICES, PAGE 37

**Pittsburgh**—A 120 x 30 x 7 foot steel tank barge was bid to the Vicksburg, Miss., United States engineers last week and Dravo Contracting Co., Neville Island, Pittsburgh, is low at $10,850 with completion in 90 days. The job requires 125 tons of plates and shapes. Midland Barge Co., Midland, Pa., was second low. Pittsburgh-Des Moines Steel Co., Pittsburgh, will require probably 1000 tons of plates for its Des Moines, Iowa, plant in the redesign, restrengthening and installation of new tops for oil tanks for the Champlin Refining Co., Enid, Okla. Alco Products Inc., a division of the American Locomotive Co., has received an order for a 1500-barrel distillation plant at Titusville, Pa., from the Oil Creek Refining Co. Plate specifications in February were a shade better than January but January was generally insignificant. No price has been announced for second quarter and in all likelihood 1.60c, Pittsburgh, will continue the plate market, except where Coatesville, Pa., base prices must be met. Three coal barges requiring 470 tons of plates were awarded to the American Bridge Co., Pittsburgh, last week by the Costanzo Coal Co., Wheeling, W. Va.

**Boston**—The spread in plate prices is narrower with 1.60c, Coatesville, covering most scattered small-lot business, although on the few larger lots 1.50c is done. Buying is light, but miscellaneous inquiry is slightly improved.

**New York**—Plates are weak and demand is weak, with 1.40c, Coatesville, Pa., done on some business, with the 1.60c price shaded consistently.

**Philadelphia**—Plate mills in this district in some cases are operating at a lower rate this week than last. The usual market is 1.50c to 1.60c, Coatesville, subject to lower quotations on inquiries involving exceptional lots.

**Cleveland**—Small lots of plates are being placed for miscellaneous industrial purposes, but boilermakers are practically out of the market. Limitations on bank withdrawals in this territory have resulted in a few suspensions of former orders, and in the slowing of new business. The price is steady at 1.60c, base, Pittsburgh.

**Chicago**—Hesitancy is noted in closing on inquiries for tanks and other fabricated plate products. Some oil tanks have been placed with most work of this nature involving repair work to existing equipment. Action on oil-carrying barges for use on the Illinois waterway is deferred although fabricators look for a fair volume of such business within the next two to three months. The Denver water line, originally planned to take 4000 tons, has been

revised and will require 1000 tons of plates.

## Contracts Placed

2400 tons, oil tanks, Houston, Tex., for Sinclair Refining Co., to Chicago Bridge & Iron Works, Chicago.

1000 tons for reconstruction and new tops, oil tanks for Champlin Refining Co., Enid, Okla., to Pittsburgh-Des Moines Steel Co., Pittsburgh, work to be done at Des Moines, Iowa, plant.

470 tons, three coal barges for Costanzo Coal Co., Wheeling, W. Va., to American Bridge Co., Pittsburgh.

## Contracts Pending

1000 tons, Denver water pipe line; plans revised.

850 tons, Irvington tunnel Hetch Hetchy project, San Francisco; bids opened.

400 tons, two 500-horsepower boilers, general Hospital, Los Angeles; C. C. Moore & Co., low bidder.

125 tons, steel tank barge, 120 x 30 x 7 feet for federal engineers, Vicksburg, Miss.; Dravo Contracting Co., Neville Island, Pittsburgh, low at $10,850; Midland Barge Co., Midland, Pa., second low at $11,950.

# Coke

### Industrial Coke Needs Hold—Domestic Demand Off

**Coke Prices, Page 38**

Demand for domestic coke is experiencing a seasonal letdown, but industrial requirements are steady. Shipments of by-product foundry at Chicago are slightly heavier and sellers look for additional improvement this month. The credit stringency thus far has been felt only at Cincinnati.

Pittsburgh reports furnace coke moving slightly better, as shipments have been resumed to a blast furnace at Sheridan, Pa. A steelworks stack at Monessen, Pa., also has been blown in and is taking coke by barge from the Neville Island producer. Birmingham reports an easier market. St. Louis sellers of coke notice an improvement both in the home and adjacent markets.

Prices generally are unchanged on the basis of beehive furnace at $1.75, Connellsville ovens; premium brands of beehive foundry at not more than $4, Connellsville ovens with common brands $2.25 to $2.50; Chicago by-product material at $7.75, delivered, Chicago, and Birmingham markets unchanged at $4.

# Railroads

### Small Repair Lots Make Most Of Present Buying—Prices of Spikes and Relayers Reduced

**TRACK MATERIAL PRICES, PAGE 37**

Buying by railroads is largely small lots for repair and track-laying purposes, rail and car inquiry being at a minimum. Some blanket inquiries for bars, plates and shapes are being issued as routine, but create little interest. The Pennsylvania has issued its first inquiry of the year for structural steel, 200 tons of fabricated shapes for a bridge at Norristown, Pa. The same road is releasing some small lots of shapes bought in 1931. Bids have been opened by the Pennsylvania on about 5000 kegs of spikes. The Boston & Albany is inquiring for 600 tons of tie plates.

The Reading is expected to buy a moderate tonnage of plates, shapes and bars early in March for additional car repairs. The Pennsylvania will inquire about March 15 for prices on all steel products it regularly buys, aggregating 10,000 to 15,000 tons for second quarter. This road indicates no immediate rail buying.

Large railroad spikes are now quoted 2.15c, Pittsburgh mills, in effect a $5 a ton reduction from the former market of 2.40c. The latter price for some time had been regarded as nominal. Previously, the spike market had been 2.40c, mill, since last October and prior to that time spikes had been quoted 2.60c since December, 1931. The reduction has not affected tie plates which continue nominally $35 a ton, mill, or other track fastenings, as well as standard open-hearth rails which continue $40, mill.

Relaying rails at Pittsburgh are now quoted $20 to $22 a ton for 20-45 pound sections. This compares with a spread of $21 to $23 formerly. On 50-75 pound sections, the market is now $16 to $18, against $18 to $20 formerly. On 80-100 pound sections, $20 to $21 prevails, compared with $23 to $25 heretofore.

## Wire Prices for Second Quarter Are Unchanged

**Wire Prices, Page 37**

**Chicago**—Activity in wire products show no improvement and quiet in some areas has been accented by the banking situation. Automotive requirements are lighter and movement of wire products from jobbers' stocks continues slow. Prices are fairly steady at new levels of $1.90, Chicago, for carload lots of wire nails and 2.15c for plain wire.

**Worcester, Mass.**—Wire prices are steadier, with slight change in volume, although buying is fairly well spread.

**Pittsburgh**—Second quarter books in wire products were opened March 1 at prices unchanged from present quotations, $1.85 in carloads for nails, 2.10c on plain wire for manufacturing purposes and $50 for woven wire fencing. The reaffirmation comes as somewhat of a surprise in view of the advance which was believed imminent. Specifications appeared a little better in February than in January.

**Cleveland**—Wire and nail tonnage here shows little variation from recent levels, with prices steady. Some seasonal requirements for wire products are noted by makers.

## Bolt, Nut Prices Hold For Second Quarter

**Bolt, Nut, Rivet, Prices, Page 37**

Orders for bolts, nuts and rivets in February were practically on a parity with those of January, jobbing and miscellaneous buying making up for the small needs of railroads. Automotive buying is slackening and agricultural implement manufacturers are not buying freely.

Second quarter contracts at current quotations are being prepared by Chicago makers and it seems probable this will be general soon. At Cleveland specifications for automotive purposes is off 25 per cent from recent weeks. No change has been met in prices, 75 off for bolts and nuts and 2.25c, Pittsburgh for large rivets.

## National Income Down 53%

National Industrial Conference board, New York, states that national income of the United States in 1932 declined 53 per cent from 1929. Complete statistics for 1932 are not yet available, but in 1931 the national income was 52.7 billion dollars in actual dollars and 37.9 billion dollars in "1913 dollars." In 1929, income was 85.2 billions in actual dollars and 53.1 billions in "1913 dollars."

# Strip

**Hot-Rolled Holds Strength—Cold-Rolled Shows Decline in Demand from Larger Users**

STRIP PRICES, PAGE 37

**Pittsburgh**—Several inquiries for second quarter strip steel requirements are reported active although most of this business is in cold-rolled strip, in small lots, quoted at 2.00c. A definite determination on second quarter market has as yet not been adopted and stripmakers are awaiting clarifying moves by sheet mills. The hot-rolled market continues firm and without deviation at 1.45c, Pittsburgh. Cold-rolled strip is being billed at 1.90c, Pittsburgh, to the fairly heavy buyer. Quotations under 1.90c do not appear to be general. Strip production here declined last week as two independent mills were down.

**Cleveland**—Automotive specifications still constitute 90 to 95 per cent of current strip requirements, but total volume is off about 50 per cent from the February average. Shipments in March apparently will be less than in February, makers estimate, based on actual and anticipated releases. Prices are steady.

**Chicago**—Strip business is quieter, due principally to smaller specifications from the automotive industry. Operations have declined to about 15 per cent. Miscellaneous business, while steadier than automotive demand, is lighter in some directions. Producers profess to be holding firmly at 1.55c, Chicago, for hot strip, this commodity being firmer than cold-rolled strip, which usually is quoted 1.90c to 2.00c, Pittsburgh-Cleveland.

## Steel Rate Falls to 15 as Banks Crimp Business

**Pittsburgh**—Steel operations remain at 15 per cent, both as of the close of last week and for this week. Long-awaited releases on a structural business may improve this rate later in March. One more steelworks blast furnace was added in this district last week and now eight out of 53 are in blast. This was the Pittsburgh Steel Co.'s Monessen, Pa., stack which blew in at the end of the week.

**Philadelphia**—A decline of one point dropped steelmaking operations 10 per cent in the week ended March 4.

**Buffalo**—District steelworks spurted unexpectedly to the highest operations in recent weeks during the week ended March 4. Whereas a 14 per cent rate was forecast, the actual rate was 23. Bethlehem placed six open hearths in production for part of the week and is continuing five. Republic, instead of suspending for the usual staggered schedule, continued two open hearths for a third consecutive week, with prospect of another week's run. Wickwire's furnace continued in. Indications are eight open hearths will make steel at least the early part of the week ended March 11, or 22 per cent.

**Youngstown, O.**—Steel output here dipped one point to 16 per cent in the week ended March 4, but was expected to rebound to 18 per cent or higher this week. The Ohio works of Carnegie was scheduled to resume March 6 after a two-week shutdown. Banking restrictions are checking steel sales and may revise the week's schedule.

**Chicago**—Steel ingot production declined further during the past week to 16 per cent, off 2 points. Blast furnace schedules have been unchanged so far this year with six of 36 steelworks furnaces and one merchant stack active, although February pig iron production showed the highest daily rate since last July. Finishing mill operations were off moderately, with rail mills still on the inactive list.

**Cleveland**—Steel ingot production here for the week ended March 4 averaged 21 per cent, down from 31 per cent for the preceding week. Otis Steel Co. dropped from three to two open hearths Feb. 27, and the following day suspended all open-hearth operations. Corrigan, McKinney Steel Co. moved down from four to three in the middle of the week. American Steel & Wire Co. continued with four. The latter contemplates reblowing its bessemer converter this week, but may take off one open hearth.

**Birmingham, Ala.**—Steelmaking operations are estimated at 15 per cent, down 2½ points.

## Foreign Ferroalloys Still Depressing Factor

Ferroalloy Prices, Page 38

Ferromanganese continues to move slowly on $68 contracts, or $61 for occasional spot business. The latter has been shaded in some instances to $60, duty paid seaboard, as not all of a recent foreign importation from Germany has been sold. Inroads of foreign spiegeleisen also are noted, with offers being made at $22 for foreign material at around 25 per cent content. Domestic furnaces still are holding to $24, furnace, on 18-20 per cent in lots up to 100 tons. Preparations are reported under way for additional barge shipments of fluorspar from southern Ohio into the Pittsburgh district.

Speed-Trak Co., Hoquiam, Wash., Frank H. Lamb president, has perfected a new model tractor which will soon be in production. New trustees of the firm include George Pauze, F. G. Foster, Henry Fairbairn, E. B. Arthaud, G. G. Kellogg, E. W. Daniels and George E. Lamb.

## Operating Rate of the Steel Industry, by Weeks

All figures except monthly, the open-hearth and bessemer ingot totals of American Iron and Steel institute are percentages. Estimates are based upon weekly reports from the Pittsburgh, Chicago, Youngstown, eastern Pennsylvania, Cleveland, Birmingham, Ala., and Buffalo districts, which are weighted. Weeks end Saturday.

| 1932 | 1st Week | 2nd Week | 3rd Week | 4th Week | 5th Week | Steel's Average | Institute's Monthly Total tons | Institute's Monthly Average |
|---|---|---|---|---|---|---|---|---|
| March | 25 | 25.5 | 24.5 | 23 | .... | 24.5 | 1,409,054 | 24.1 |
| April | 23 | 22 | 22 | 23 | 24 | 22.8 | 1,238,250 | 22.0 |
| May | 24 | 24 | 25.5 | 23 | .... | 24.1 | 1,106,030 | 19.7 |
| June | 21 | 17 | 17 | 17 | .... | 18.0 | 897,275 | 15.9 |
| July | 14.5 | 12 | 15.5 | 16.5 | 16.5 | 15.0 | 792,533 | 14.6 |
| Aug. | 14.5 | 14.5 | 15.5 | 14.5 | .... | 14.7 | 832,402 | 14.2 |
| Sept. | 13.5 | 15.5 | 15 | 17 | .... | 15.3 | 975,061 | 17.3 |
| Oct. | 18 | 19 | 19.5 | 19.5 | 19.5 | 19.1 | 1,068,550 | 19.0 |
| Nov. | 21 | 21 | 19 | 17.5 | .... | 19.6 | 1,014,794 | 18.0 |
| Dec. | 16 | 15 | 14 | 12 | 13 | 14.0 | 844,618 | 15.0 |
| 1933 | | | | | | | | |
| Jan. | 15.5 | 17 | 18 | 19 | .... | 17.4 | 1,006,297 | 17.7 |
| Feb. | 19 | 19 | 19 | 17 | .... | 18.5 | ..... | .... |
| March | 15 | .... | .... | .... | .... | .... | ..... | .... |

# Structural Shapes

**Larger Tonnages Placed Though Number of New Projects Still Is Restricted —2600 Tons Awarded for Philadelphia Hospital— Prices May Be Reaffirmed**

STRUCTURAL SHAPE PRICES, PAGE 37

**New York**—With bids in on 13,000 tons for the postoffice annex superstructure, New York, and the anticipated closing this week on the first 900 tons of a 4400-ton viaduct at Newark, N. J., active pending tonnage is heavier. The demand, however, is unbalanced, inquiry being for large or small tonnages, with little activity in projects taking 200 to 500 tons. Plain material prices are steady at 1.60c, Pittsburgh.

**Philadelphia**—Shapes continue firm at 1.60c, base, mill, equivalent to 1.65c, delivered, Philadelphia. Awards are light, except for 2250 tons placed for a Reading railroad bridge at Rupert, Pa., and 2600 tons for a naval hospital at Philadelphia.

**Pittsburgh**—Indications point to a continuation of 1.60c, Pittsburgh, as the price of plain material for the second quarter, but definite announcement is awaited. Approximately 50,000 tons of steel will be rolled by a leading mill in this district in March, on recent awards.

**Cleveland**—The market for shapes here is quieter than in many months, fabricators noting a falling off in small projects, as well as in larger requirements. A Chicago contractor has been awarded the contract for the Columbus, O., postoffice, taking 4000 tons. For an Erie railroad bridge at Endicott, N. Y., an Ohio fabricator will require approximately 200 tons. Plain material continues 1.60c, base, Pittsburgh.

**Chicago**—With the exception of the postoffice at St. Paul, structural projects usually involve small lots. Bids have been taken on 1600 tons of piling for a dam at Corpus Christi, Tex. New inquiry is light.

## Contracts Placed

2600 tons, naval hospital, Philadelphia, to American Bridge Co., Pittsburgh; through John McShane, Philadelphia, general contractor.

2250 tons, Reading railroad bridge, Rupert, Pa., to Phoenix Bridge Co., Phoenixville, Pa.

1550 tons, federal aid project E-219, Tammany parish, La., also E-202-D, Louisiana; 850 tons of steel piling to Bethlehem Steel Co., Bethlehem, Pa., and 700 tons of structural steel to Jones & Laughlin Steel Corp., Pittsburgh; W. Horace Williams Co. Inc., New Orleans, general contractor.

500 tons, buildings, Freeport Sulphur Co., Plaquemines, La., to Ingalls Iron Works Co., Birmingham, Ala.

575 tons, locks, Alma, Wis., to Duffin Iron Works, Chicago.

450 tons, postoffice, Oak Park, Ill., to Joseph T. Ryerson & Son Inc., Chicago.

400 tons, bridge over Mojave river at Barstow, Calif., to Virginia Bridge & Iron Co., Roanoke, Va.; previously reported as going to McClintic-Marshall Corp., Bethlehem, Pa.

375 tons, Barren river, lock, Bowling Green, Ky., to Mississippi Valley Structural Steel Co., Decatur, Ill.

250 tons, boiler plant alterations, Wilson & Co., Chicago, to McClintic-Marshall Corp., Bethlehem, Pa.

235 tons, telephone buildings, San Francisco, to Judson-Pacific Co., San Francisco.

205 tons, Erie railroad grade crossing, Endicott, N. Y., to Mt. Vernon Bridge Co., Mt. Vernon, O.

200 tons, postoffice, Yuma, Ariz., to unnamed interest; Bannister-Field Co., Los Angeles, general contractor.

190 tons, highway bridge, Warren, Pa., to Lackawanna Steel Construction Corp., Buffalo, N. Y.

175 tons, triple span state bridge, Wicomico river, Charles county, Maryland, to Shippers' Car Line Inc., Milton, Pa.; Empire Construction Co., Baltimore, general contractor.

150 tons, Park street bridge for Pennsylvania railroad, Akron, O., to Burger Iron Co., Akron, O.

100 tons, bus terminal, Washington, to Belmont Iron Works, Philadelphia.

## Contracts Pending

13,000 tons, superstructure, postoffice annex, Eighth avenue at Thirty-first and Thirty-third streets, New York; D. M. W. Contracting Co., Brooklyn, low; bids Feb. 28.

4500 tons, federal office building, San Francisco; N. P. Severin Co., Chicago, low, $2,548,000; bids Feb. 28.

4000 tons, postoffice, Columbus, O.; Henry Ericson Co., Chicago, awarded general contract.

2500 tons, Farman street bridge over Missouri river, Omaha, Nebr.

1600 tons, piling, La Fruta dam, Corpus Christi, Tex.; bids March 3.

1500 tons, county jail, San Francisco; bids soon.

1000 tons, Twenty-third avenue bridge, Oakland, Calif.; bids soon.

1000 tons, Benton field, Alameda, Calif.; bids soon.

800 tons, postoffice, Phoenix, Ariz.; bids March 21.

550 tons, superstructure, machinery and power plant, East Pearl river bridge, unit 2, f.a.p. E-219, St. Tammany parish, La.; bids March 21, former bids having been rejected.

600 tons, Kansas state highway bridge, Wichita, Kans.

245 tons, 145 tons of shapes and 100 tons of bars, highways and bridges, Arkansas; bids March 3.

150 tons, mess hall, United States Southwestern reformatory, El Reno, Okla.; H. W. Underhill Construction Co., Oklahoma City, low; bids Feb. 28.

130 tons, high school, Yeadon, Pa.; Ralph Herzog, general contractor.

100 tons, postoffice, Ventura, Calif.; bids March 24.

Unstated tonnage, shapes and plates, Panama, bids of Feb. 17; Bethlehem Steel Export Co., low on shapes, $3179.23; Central Iron & Steel Co., Harrisburg, Pa., low on plates, $1392.24.

## Shape Awards Compared

| | Tons |
|---|---|
| **Week ended, March 4** | **9,805** |
| **Week ended Feb. 25** | **5,347** |
| **Week ended Feb. 18** | **5,185** |
| **This week in 1932** | **24,299** |
| **Average weekly, 1932** | **14,285** |
| **Average weekly, 1933** | **9,166** |
| **Average weekly, Feb.** | **12,320** |
| **Total to date, 1932** | **146,969** |
| **Total to date, 1933** | **91,662** |

## Bar Iron Wages Advanced; Sheet, Tin Plate Unchanged

Wages in bar iron mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers, will be increased in March and April, puddlers to receive $9.30 a ton, 25 cents up from January and February. The average sales price of bar iron in the past two months was 1.50c per pound, compared with 1.45c in the preceding two months. Following are further price comparisons:

| | 1933 | 1932 | 1931 |
|---|---|---|---|
| Jan.-Feb. | 1.50c | 1.65c | 1.70c |
| March-April | | 1.65c | 1.70c |
| May-June | | 1.50c | 1.70c |
| July-Aug. | | 1.45c | 1.70c |
| Sept.-Oct. | | 1.50c | 1.65c |
| Nov.-Dec. | | 1.45c | 1.65c |
| Yearly average | | 1.53c | 1.66c |

Wage rates in sheet and tin plate mills will be unchanged for March and April, the average sales price of Nos. 26, 27 and 28 gage black sheets holding at 2.30c per pound in January and February. Monthly comparisons follow:

| | 1933 | 1932 | 1931 |
|---|---|---|---|
| Jan.-Feb. | 2.30c | 2.40c | 2.60c |
| March-April | | 2.30c | 2.65c |
| May-June | | 2.30c | 2.50c |
| July-Aug. | | 2.30c | 2.40c |
| Sept.-Oct. | | 2.30c | 2.40c |
| Nov.-Dec. | | 2.30c | 2.40c |
| Yearly average | | 2.31c | 2.49c |

# Concrete Bars

**Awards Well Sustained, With 2250 Tons Placed for New York Central Warehouse—Public Work Continues Slow—Price Stabilization Efforts Spread**

REINFORCING BAR PRICES, PAGE 37

**New York**—Approximately 3400 tons of concrete bars were placed during the week, including one project taking 2250 tons. Efforts are being made to firm the billet steel reinforcing bar market to 1.40c, Pittsburgh, or 1.55c, for cut lengths. With Buffalo fixed as a basing point at 1.40c, a slight advantage accrues to that territory on delivered prices to the New York city area.

**Boston**—While not tested by substantial volume, concrete bar prices are steadier at 1.76c, delivered, for billet steel bars, or 1.40c, Buffalo, the latter basing point having some advantage over Pittsburgh through a lower freight rate. Buying is in small lots.

**Philadelphia**—Concrete bar prices range from 1.20c to 1.60c, base, Pittsburgh, depending upon the attractiveness of the order. The market is quiet.

**Pittsburgh**—Producers of new billet steel reinforcing bars have adopted a stabilized base of 1.40c, Pittsburgh, for mill lengths. The new base price on cut lengths for distributors is 1.55c, Pittsburgh. Buffalo is now a basing point at 1.40c, with the adoption of a Buffalo basing price the same as Pittsburgh, bars in New York will now be sold on a Buffalo base, plus freight and surcharge, as the Buffalo-New York rate is slightly more advantageous than the Pittsburgh-New York rate. About 800 tons are to be awarded for a sewage disposal plant at Lancaster, Pa., for which a Philadelphia company is contractor.

**Cleveland**—New billet steel bars in mill lengths continue to be quoted by the Cleveland maker at 1.40c to 1.50c, mill; distributor prices also are unchanged. The market is untested, demand being practically at a standstill.

**Chicago**—Distributors have set prices at 1.40c for billet bars and 1.30c for rail steel bars, following previous announcements by mills of base prices of $2 a ton under these levels. A wider range had been anticipated by some. The market is quiet although prices show a firmer tone.

## Contracts Placed

2250 tons, warehouse, St. John's Park terminal, New York Central railroad, New York, to Truscon Steel Co., Youngstown, O.; James Stewart & Co. Inc., New York, general contractor.

800 tons, federal aid project E-219, Tammany parish, La., and E-202-D, also Louisiana, to Concrete Steel Co.; W. Horace Williams Co. Inc., New Orleans, general contractor.

560 tons, apartment, Prudential Insurance Co., Newark, N. J., to Faitoute Iron & Steel Co., Newark; Walter Kidde Co., general contractor.

225 tons, postoffice, Albany, N. Y., to Concrete Steel Co., New York; N. P. Severin Co., Chicago, general contractor.

250 tons, prison, Woodburne, N. Y., to Concrete Steel Co., New York; Babor-Comeau Co., New York, general contractor.

200 tons, immigration station, Honolulu, T. H., to J. L. Young Engineering Co., Honolulu.

200 tons, Junior high school, Dallas, Tex., to Southern State Steel Co., San Antonio, Tex.; R. F. Ball Construction Co., Ft. Worth, Tex., general contractor. Austin Bros. awarded 80 tons of structural steel.

190, mesh, highway, Little River county, Arkansas, to Sheffield Steel Corp.; through A. C. Campbell, Shreveport, La.

## Contracts Pending

1000 tons, naval hospital, Philadelphia; John McShane, Philadelphia, general contractor.

800 tons, sewage disposal plant, Lancaster, Pa.; Thomas Burke, Philadelphia, general contractor.

500 tons, department store, Main street, Alhambra, Calif.; bids being taken.

425 tons, sewer, Cincinnati; Carroccio & Gaudio, East Cleveland, O., unofficially reported low bidder.

175 tons, service detachment barrack, West Point, N. Y.; D. A. Sullivan & Sons Inc., Northampton, Mass., general contractor.

115 tons, filtration plant, Ambridge, Pa.; Patterson Engineering Corps., Detroit, general contractor at $111,700.

Unstated tonnage, irrigation canals, DeBaca county, New Mexico; R. F. C. to purchase $135,000 worth of bonds.

Unstated tonnage, enlargement of intake canal, Sterling, Colo.; R. F. C. to purchase $110,000 worth of bonds.

## Concrete Awards Compared

| | Tons |
|---|---|
| Week ended, March 4 | 4,475 |
| Week ended Feb. 25 | 5,848 |
| Week ended Feb. 18 | 924 |
| This week, 1932 | 6,197 |
| Average weekly, 1932 | 3,920 |
| Average weekly, 1933 | 3,605 |
| Average weekly, Feb. | 3,539 |
| Total to date, 1932 | 55,071 |
| Total to date, 1933 | 36,054 |

# Business News Of Washington

UNITED States Supreme Court may be called upon to decide a clash between the federal transportation act and the Pennsylvania state constitution over long and short-haul rates in Pennsylvania.

Two years ago, when intrastate class rates were revised, the interstate commerce commission granted a so-called fourth action relief. Pennsylvania authorities permitted a revision of intrastate rates to harmonize with interstate scales. But railroads whose routes were longer than short-line routes between competitive points have found they cannot meet short-line rates with reductions to intermediate points. The interstate commerce commission having ordered intrastate rates to conform to interstate ones, a direct conflict has resulted.

□ □ □

New Reconstruction Finance Corp. loans include:

Union City, Ind., $45,000 for improving city waterworks, requiring 1500 feet of cast iron pipe and a 200,000-gallon steel tank.

Coal Grove, O., $62,000 for water system, requiring 480 tons of 10-inch cast iron pipe.

Illmo, Mo., $42,000 for waterworks improvements, including steel tank and cast iron pipe.

Williamsburg, O., $35,000 for 380 tons of cast iron pipe and 100,000-gallon steel water tank.

Pima Water Co., Pima, Ariz., $13,500 for 6-inch riveted steel pipe and fittings for water system.

Owingsville, Ky., $29,000 for material, principally cast iron pipe, for a waterworks system.

Sterling, Colo., $110,000, and DeBaca county, New Mexico, $135,000, both for irrigation work requiring reinforcing steel.

□ □ □

Iron and steel division of the department of commerce in 1932 handled 7859 inquiries, an increase of 269 over 1931.

# Pipe

**Municipal and Utilities Buying Is Light—R. F. C. Finances Additional Small Projects**

PIPE PRICES, PAGE 37

**Chicago**—Cast iron pipe inquiry is dull and unchanged, the outstanding item being 3000 tons of 4 to 16-inch pipe on which bids recently were taken by Cincinnati. Pending work is light. Some steel line pipe construction in the Middle West is under way. Cast iron pipe prices are steady.

**Boston**—Some municipalities are inquiring for pipe, but the demand is below the usual volume at this time. Gloucester and Medford, Mass., are closing on about 350 tons. Prices are unchanged.

**New York**—Cast pipe buying is light and the usual seasonal pickup in inquiry is lagging. Eastern foundries are not operating better than 30 to 40 per cent. Prices are fairly steady at $30 to $32, eastern foundry.

**Pittsburgh**—Demand for tubular products is quiet. A small improvement in standard pipe is expected in the spring. A 1500-barrel distillation plant for the Oil Creek Refining Co. will be built at Titusville, Pa., by Alco Products Inc., New York.

**Cleveland**—Orders for steel pipe are limited to occasional carloads, with jobbers taking little material. Reductions in municipal budgets and inability to finance projects are delaying orders for cast pipe.

**Cincinnati**—Bids are being tabulated on 3000 tons of cast iron pipe, 4-inch to 16-inch, for the Cincinnati waterworks. A preliminary report indicated the United States Pipe & Foundry Co., Burlington, N. J., was low on part of the contract, and the Waltham Corp., New York, on fittings.

**Birmingham, Ala.**—Cast pipe awards still are scarce, though bids have been taken on many municipal projects. Operations are intermittent.

## Cast Pipe Pending

3000 tons, 4 to 16-inch, Cincinnati; bids taken.

480 tons, 4 to 10-inch, water system, Coal Grove, O.; R. F. C. to purchase $62,000 worth of bonds.

380 tons, waterworks, Williamsburg, O.; R. F. C. will purchase $35,000 worth of bonds. Project includes 100,000-gallon steel tank.

138 tons, 8-inch class 150, Livermore, Calif.; bids March 9.

Unstated tonnage, waterworks, Owingsville, Ky.; R. F. C. to purchase $49,000 worth of bonds.

Unstated tonnage, 1500 feet of cast pipe and 200,000-gallon steel tank, waterworks, Union City, Ind.; R. F. C. to purchase $45,000 worth of bonds.

Unstated tonnage, cast pipe and steel tank, waterworks, Illmo, Mo.; R. F. C. to purchase $42,000 worth of bonds.

## Mirrors of Motordom

(*Concluded from Page* 15)

num head, has a compression ratio of 6.33 to 1, second only to the 6.50 ratio in all Grahams. . . . General Motors on March 1 canceled its offer of 12 free lubricating jobs with new Buicks, Oldsmobiles and Pontiacs. The plan helped get owners back to service stations, but the oil industry protested it was unethical. . . . Manufacturers of antifreeze compound are pleased with the new style radiator shells. Shutters cannot be used, many manufacturers now mount a thermostat on the engine block to prevent circulation of water until the engine warms up, and consequently a higher proportion of antifreeze is required.

## Sheet Output Higher in January; Sales Steady

Sheet production in January averaged 2753 net tons daily, up from 2499 tons in December, according to the current report from the National Association of Flat Rolled Steel Manufacturers, Cleveland. Shipments averaged 2556 tons in January, compared with 2174 tons in the preceding month. Sales were practically unchanged, 2439 tons, against 2482 tons.

Total production for January was 85,337 tons; shipments, 79,234 tons; and sales, 75,615 tons. Unfilled tonnage as of Feb. 1 was 77,509 tons; Jan. 1, 84,390 tons. Total sheet capacity in the United States for January was approximately 550,000 tons,


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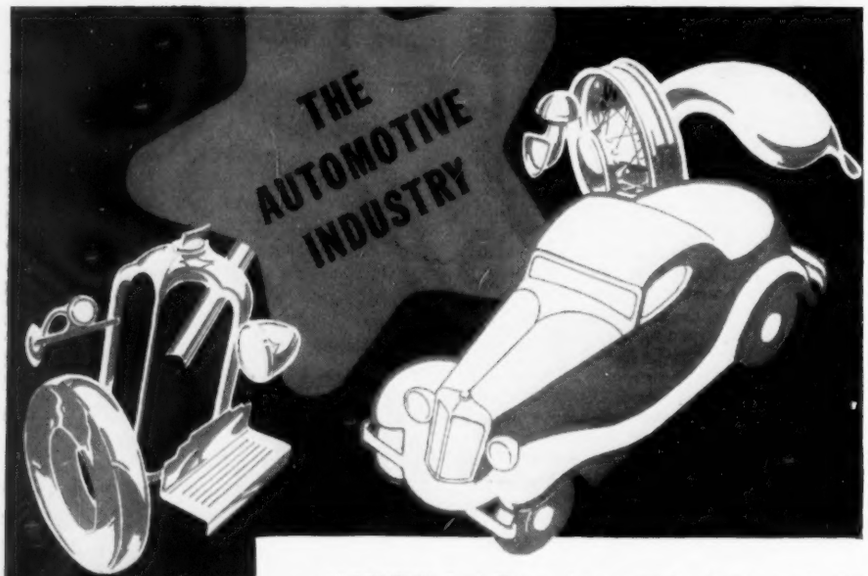


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Sales Offices and Warehouse Stocks in the Principal Cities
Stocks carried by Jos. T. Ryerson & Son, Inc. Warehouses—Dunham, Carrigan & Hayden Co., San Francisco; Union Hardware & Metal Co., Los Angeles

and the capacity on which the association's figures are based is 330,000 tons.

## Financial News of Steel Industry

GRANITE CITY STEEL CO., Granite City, Ill., reports net profit of $13,827, after all charges in 1932, equivalent to 5 cents a common share. Granite City Steel thus joins the National Steel Corp. in being the only raw steel producers to show a net income for 1932. In 1931, the net profit of Granite City Steel was $332,319, equal to $1.23 a share.

□ □ □

K. W. Berry, executive vice president, First National Bank of Birmingham, Ala., is chairman of a protective committee organized by holders of first mortgage lien collateral trust 6 per cent gold notes of the Woodward Iron Co. Interest on these notes due Feb. 1 was not paid.

□ □ □

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., reports for 1932 a net loss, after charges, of $8,903,540, compared with net loss of $3,655,660 in 1931.

□ □ □

Link-Belt Co., Chicago, reports for 1932 a net loss of $970,120, compared with net income of $638,973 in 1931. The 1932 loss includes $549,535 charged off for the transfer of manufacturing operations, including those from Muskegon, Mich., to Indianapolis.

□ □ □

Harnischfeger Corp., Milwaukee, reports for 1932 loss of $893,684 after all charges, including $193,923 inventory write-down. This compares with net loss of $1,254,001 in 1931. Current assets Dec. 31 were $5,165,983, while current liabilities were only $169,606.

□ □ □

National Acme Co., Cleveland, shows net loss, after charges, in 1932 of $895,458, against loss of $1,095,149 in 1931.

□ □ □

The Superheater Co., Wilmington, Del., reports net profit of $337,027, after all charges, in 1932, income from investments, allied companies and the sale of securities, offsetting an operating loss of $252,814. Net working capital of the company Dec. 31 was $11,311,072, of which $802,410 was cash.

□ □ □

Mesta Machine Co., Pittsburgh, reports net profit of $327,870 in 1932 against net profit of $2,012,032 in 1931.

□ □ □

Greenfield Tap & Die Corp., Greenfield, Mass., shows net loss, after charges, for 1932 of $180,524 contrasted with a loss of $76,730 in 1931.

□ □ □

American Rolling Mill Co., Middletown, O., sustained net loss, after charges, in 1932 of $2,029,602, compared with net loss of $3,098,445 in 1931. Current assets Dec. 31 totaled $25,910,280 and liabilities $2,901,105. Cash and liquid securities totaled $5,716,391, against $6,735,343 on Dec. 31, 1931.

### Cinder, Scale Market Low

The mill cinder and scale market this year is the narrowest in history. Scale is available at $1.50, delivered eastern Pennsylvania blast furnaces, compared with about $4.50 in 1928 and 1929. Cinder is available at about 75 cents delivered, which compares with about $3 four to five years ago. This condition is due largely to the small number of blast furnaces now in operation and in the market for such material.

### Disston To Supply Files

Henry Disston & Sons, Philadelphia, has been awarded files for the navy department at $5479.94, delivered west points, and $1829.14, delivered east yards.


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# Scrap

**Loading for Export Continues —Slight Rise in Pittsburgh Prices—Most Buying Moderate**

**Pittsburgh**—No. 1 heavy melting steel has advanced 25 cents, due to willingness of an important down-river consumer to pay up to $9 for lots of 1000 tons or more. A further strengthening effect appears likely in that the Pennsylvania railroad's scrap may bring over $9 as long as the willingness to buy by this consumer is current. No. 2 heavy melting steel likewise is stronger, now ranging between $7.25 and $7.75. The Baltimore & Ohio railroad closed a small list March 6 on which there was 700 tons of No. 1 steel, a like tonnage of No. 1 rails and smaller lots of uncut bridge scrap, wheels and destroyed steel cars. The Pennsylvania's list of last week carried about 30,000 tons, the largest single item being 10,000 tons of No.

## IRON AND STEEL SCRAP PRICES

*Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated*

**HEAVY MELTING STEEL**

| | |
|---|---|
| Birmingham | 6.50 to 7.00 |
| Boston, dealers | 3.00 to 3.25 |
| Buffalo, No. 1 | 7.00 to 7.25 |
| Buffalo, No. 2 | 6.00 to 6.25 |
| Chicago | 5.00 to 5.50 |
| Cleve., No. 1 | 7.00 to 7.50 |
| Cleve., No. 2 | 6.00 to 6.50 |
| Det., No. 1 deal. | 4.50 to 5.00 |
| Det., No. 2 deal. | 3.75 to 4.25 |
| E. Pa. del. mill | 6.50 |
| E. Pa., No. 2 del. | 5.00 to 5.50 |
| Federal, Ill. | 4.75 to 5.25 |
| Granite City, Ill. | 5.00 to 5.50 |
| N. Y., deal. R. R. | 5.00 |
| N. Y. deal. No. 2 | 3.50 |
| N. Y. deal. yd. | 2.50 to 3.00 |
| Pitts. No. 1 | 8.25 to 8.75 |
| St. L. No. 1 sel. | 5.50 to 6.00 |
| Valleys, No. 1 | 8.50 to 9.00 |

**COMPRESSED SHEETS**

| | |
|---|---|
| Buffalo, dealers | 6.00 to 6.25 |
| Chi. (Factory) | 4.00 to 4.50 |
| Cleveland | 6.50 to 7.00 |
| Detroit, dealers | 4.00 to 4.50 |
| E. Pa. new mat. | 5.00 to 6.00 |
| Pittsburgh | 8.25 to 8.75 |
| Valleys | 8.00 to 8.50 |

**BUNDLED SHEETS**

| | |
|---|---|
| Buffalo | 4.00 to 4.50 |
| Cincinnati, del. | 4.00 to 4.50 |
| Cleveland | 4.50 to 5.00 |
| Eastern, Pa. | 5.00 |
| Pittsburgh | 7.25 to 7.75 |
| St. Louis | 1.50 to 2.00 |

**SHEET CLIPPINGS LOOSE**

| | |
|---|---|
| Chicago | 2.00 to 2.50 |
| Cincinnati | 1.50 to 2.00 |
| Detroit, dealers | 1.25 to 1.75 |
| St. Louis | 1.50 to 2.00 |

**STEEL RAILS SHORT**

| | |
|---|---|
| Birmingham | 7.50 to 8.00 |
| Boston, dealers | 3.00 to 3.25 |
| Buffalo | 9.50 to 10.00 |
| Chicago (3 ft.) | 7.50 to 8.00 |
| Chicago (2 ft.) | 8.00 to 8.50 |
| Cincinnati, del. | 8.50 to 9.00 |
| Detroit, deal. | 8.00 to 8.50 |
| Pitts. (open-hearth, 3 ft. and less) | 10.00 to 10.50 |
| St. Louis | 7.00 to 7.50 |

**STOVE PLATE**

| | |
|---|---|
| Birmingham | 5.00 to 5.50 |
| Boston, dealers | 2.00 to 2.50 |
| Buffalo | 7.00 to 7.25 |
| Chicago, net | 4.50 to 5.00 |
| Cinci., deal. net | 3.50 to 4.00 |
| Det., net deal. | 2.50 to 3.00 |
| Eastern Pa. | 5.50 to 6.00 |
| N. Y., deal. mill | 2.50 to 3.00 |
| St. Louis | 5.50 to 6.00 |

**COUPLERS, SPRINGS**

| | |
|---|---|
| Buffalo | 8.50 to 9.00 |
| Chicago | 6.50 to 7.00 |
| Eastern Pa. | 8.00 to 8.50 |
| Pittsburgh | 9.50 to 10.00 |
| St. Louis | 5.25 to 6.25 |

**ANGLE BARS—STEEL**

| | |
|---|---|
| Chicago | 7.00 to 7.50 |
| St. Louis | 5.75 to 6.25 |

**LOW PHOSPHORUS**

| | |
|---|---|
| Buffalo, billets and bloom crops | 8.50 to 9.00 |
| Cleveland bil. and bloom crops | 10.00 to 11.00 |
| Eastern Pa. | 10.00 |
| Pittsburgh billet bloom crops | 10.50 to 11.00 |
| Pitts., sheet bar crops | 10.50 to 11.00 |

**FROGS, SWITCHES**

| | |
|---|---|
| Chicago | 5.00 to 5.50 |
| St. Louis | 5.00 to 5.50 |

**SHOVELING STEEL**

| | |
|---|---|
| Chicago | 5.00 to 5.50 |
| Cleveland | 5.75 to 6.00 |
| St. Louis | 4.75 to 5.25 |

**RAILROAD WROUGHT**

| | |
|---|---|
| Birmingham | 6.50 to 7.50 |
| Boston, dealers | 1.00 to 1.50 |
| Buffalo, No. 1 | 4.25 to 4.75 |
| Buffalo, No. 2 | 7.00 to 7.25 |
| Chi., No. 1, net | 4.50 to 5.00 |
| Chicago, No. 2 | 5.00 to 5.50 |
| Cinci., No. 2 | 5.00 to 5.50 |
| Eastern Pa. | 6.50 |
| N. Y., No. 1, deal. | 2.50 to 3.00 |
| Pitts., No. 1 | 8.25 to 8.75 |
| St. Louis, No. 1 | 3.50 to 4.00 |
| St. Louis, No. 2 | 5.00 to 5.50 |

**SPECIFICATION PIPE**

| | |
|---|---|
| Boston | 3.00 to 4.00 |
| Eastern Pa. | 6.00 to 7.00 |
| N. Y., deal | 2.00 to 2.25 |
| St. Louis | 4.75 to 5.25 |

**BUSHELING**

| | |
|---|---|
| Buffalo, No. 1 | 6.00 to 6.25 |
| Chicago, No. 1 | 3.50 to 4.00 |
| Cinci., No. 1 deal. | 4.00 to 4.50 |
| Cinci., No. 2 | 2.50 to 3.00 |
| Cleve., No. 2 | 4.00 to 4.50 |
| Det., No. 1 new deal | 3.50 to 4.00 |
| St. L., No. 1 | 3.00 to 3.50 |
| Val. new No. 1 | 8.50 to 8.75 |

**MACHINE TURNINGS**

| | |
|---|---|
| Birmingham | 2.50 to 3.00 |
| Boston, dealers | 0.75 to 1.00 |
| Buffalo | 3.50 to 4.00 |
| Chicago | 3.25 to 3.75 |
| Cinci., deal | 3.00 to 3.50 |
| Cleveland | 4.00 to 4.25 |
| Detroit | 2.00 to 2.50 |
| Eastern Pa. | 3.00 to 3.50 |
| N. Y., deal. | 1.35 to 1.50 |
| Pittsburgh | 6.25 to 6.75 |
| St. Louis | 1.50 to 2.00 |
| Valleys | 6.25 to 6.75 |

**BORINGS AND TURNINGS**

*For Blast Furnace Use*

| | |
|---|---|
| Boston, dealers | 0.75 to 0.90 |
| Buffalo | 3.00 to 3.50 |
| Cinci., deal | 3.00 to 3.50 |
| Cleveland | 4.50 to 5.00 |
| Detroit, deal. | 2.50 to 3.00 |
| Eastern Pa. | 3.50 to 3.75 |
| N. Y., deal. | 1.35 to 1.50 |
| Pittsburgh | 5.50 to 6.00 |

**CAST IRON BORINGS**

| | |
|---|---|
| Birming., chem. | 12.00 to 13.00 |
| Birming., plain | 2.50 to 3.00 |
| Boston, chem. | 5.50 to 6.00 |
| Boston, dealers | 1.00 to 1.25 |
| Buffalo | 3.50 to 4.00 |
| Chicago | 3.25 to 3.75 |
| Cinci., deal. | 3.00 to 3.50 |
| Cleveland | 4.50 to 5.00 |
| Detroit, deal. | 2.50 to 3.00 |
| Eastern Pa. | 3.50 to 3.75 |
| E. Pa., chem. | 8.00 to 10.00 |
| N. Y., deal. | 1.00 to 1.50 |
| Pittsburgh | 5.75 to 6.25 |
| St. Louis | 2.00 to 2.50 |

**PIPE AND FLUES**

| | |
|---|---|
| Cinci., deal. | 3.25 to 3.50 |

**RAILROAD GRATE BARS**

| | |
|---|---|
| Buffalo | 4.00 to 4.50 |
| Chicago, net | 5.00 to 5.50 |
| Cincinnati | 4.00 to 4.50 |
| Eastern Pa. | 5.50 to 6.00 |
| N. Y., deal. | 3.50 to 4.00 |
| St. Louis | 4.50 to 5.00 |

**FORGE FLASHINGS**

| | |
|---|---|
| Boston, dealers | 2.00 to 2.50 |
| Buffalo | 5.50 to 6.00 |
| Cleve. ov. 10 in. | 6.00 to 6.50 |
| Detroit | 2.75 to 3.25 |

**FORGE SCRAP**

| | |
|---|---|
| Boston, dealers | 1.75 to 2.00 |
| Chicago | 6.50 to 7.00 |
| Eastern Pa., del. | 5.00 to 5.50 |

**ARCH BARS, TRANSOMS**

| | |
|---|---|
| Chicago, net | 5.00 to 5.50 |
| St. Louis | 3.50 to 4.00 |

**AXLE TURNINGS**

| | |
|---|---|
| Boston, deal. | 2.50 to 3.00 |
| Buffalo | 6.00 to 6.25 |
| Chi., elec. fce. | 4.50 to 5.00 |
| Cleveland | 5.50 to 6.00 |
| Eastern Pa., del. | 6.00 to 7.00 |
| Pittsburgh, O. H. | 7.00 to 7.50 |
| St. Louis | 3.00 to 3.50 |

**STEEL CAR AXLES**

| | |
|---|---|
| Birmingham | 8.75 to 9.00 |
| Boston, ship. pt. | 5.50 to 6.50 |
| Buffalo | 10.00 to 10.50 |
| Chicago, net | 8.50 to 9.00 |
| Eastern Pa. | 14.50 |
| St. Louis | 8.75 to 9.25 |

**SHAFTING**

| | |
|---|---|
| Boston, ship pt. | 6.50 to 7.00 |
| Eastern Pa. | 11.00 to 12.00 |
| N. Y., deal. | 5.50 to 6.00 |
| St. Louis | 7.50 to 8.00 |

**CAR WHEELS**

| | |
|---|---|
| Birming., iron | 6.00 to 6.50 |
| Boston, iron deal. | 3.00 to 3.25 |
| Buffalo, iron | 7.00 to 8.00 |
| Buffalo, steel | 8.50 to 9.00 |
| Chicago, iron | 8.00 to 8.50 |
| Chi., rolled steel | 7.00 to 7.50 |
| Cincinnati iron | 6.25 to 6.75 |
| E. Pa. iron | 8.50 |
| E. Pa. steel | 8.00 to 8.50 |
| Pitts., iron | 7.75 to 8.25 |
| Pitts., steel | 9.00 to 9.50 |
| St. Louis, iron | 4.75 to 5.25 |
| St. Louis, steel | 6.00 to 6.50 |

**NO. 1 CAST SCRAP**

| | |
|---|---|
| Birmingham | 6.50 to 7.50 |
| Boston, textile | 6.75 to 7.00 |
| Boston, No. 2 | 2.00 to 2.25 |
| Buffalo (Mach.) | 9.50 to 10.00 |
| Buffalo, cupola | 9.00 to 9.25 |
| Chi., mach. net | 5.75 to 6.25 |
| Chi., railroad net | 5.50 to 6.00 |
| Chicago, agri., net | 5.00 to 5.50 |
| Cinci., mach. cup | 6.50 to 7.00 |
| Cleve. cupola | 7.00 to 8.00 |
| Det., net deal. | 6.50 to 7.00 |
| E. Pa. cupola | 9.00 to 9.50 |
| N. Y., cup. deal. | 4.50 to 5.00 |
| N. Y., del. local foundries | 7.00 to 7.50 |
| Pitts., cupola | 9.00 to 9.50 |
| San Fran., del. | 13.50 to 14.00 |
| Seattle | 4.50 to 6.50 |
| St. L. No. 1 mach. | 6.00 to 6.50 |
| St. L. No. 1 | 5.50 to 6.00 |

**HEAVY CAST**

| | |
|---|---|
| Boston, del. | 3.25 to 3.50 |
| Bost., mach. cast | 7.00 to 7.50 |
| Buffalo, break | 6.50 to 7.00 |
| Cleve., break | 5.50 to 6.00 |
| Detroit, auto net deal. | 7.00 to 7.50 |
| Det. break., deal. | 4.00 to 4.50 |
| Eastern Pa. | 8.00 to 8.50 |
| N. Y. No. 1, deal. | 4.50 to 5.00 |
| N. Y. break, deal. | 4.00 to 4.50 |
| Pittsburgh | 8.00 to 8.50 |

**MALLEABLE**

| | |
|---|---|
| Boston, consum. | 6.75 to 7.25 |
| Buffalo | 8.00 to 8.50 |
| Chicago, agri. | 5.00 to 5.50 |
| Chicago, R. R. | 5.50 to 6.00 |
| Cinci., agri. del. | 6.00 to 6.50 |
| Cinci., R. R., del. | 6.50 to 7.00 |
| Cleveland, rail | 7.50 to 8.00 |
| Det. auto deal. | 5.00 to 5.50 |
| St. Louis | 7.00 to 7.50 |

**RAILS FOR ROLLING**

*5 feet and over*

| | |
|---|---|
| Birmingham | 7.50 to 8.00 |
| Boston, deal. | 5.00 to 5.50 |
| Buffalo | 7.00 to 7.50 |
| Chicago | 7.50 to 8.00 |
| Eastern Pa. | 9.50 |
| New York dealer | 3.75 to 4.25 |
| St. Louis | 7.00 to 7.50 |

**LOCOMOTIVE TIRES**

| | |
|---|---|
| Chicago, cut | 7.00 to 7.50 |
| St. L., No. 1 | 5.00 to 5.50 |

**LOW PHOS. PUNCHINGS**

| | |
|---|---|
| Buffalo | 9.00 to 9.50 |
| Chicago | 7.00 to 7.50 |
| Eastern Pa. | 8.00 to 8.50 |
| Pittsburgh | 9.50 to 10.00 |

1 steel. A mill in this district is negotiating for the purchase of some No. 2 steel at $7 to $7.25.

**Chicago**—Scrap continues to mark time, with shipments of steelmaking grades off slightly as a result of lower open-hearth operations. New business continues light and although some additional sales of heavy melting steel at $5.50 are noted, tonnage involved is small and no immediate increase in purchases of large tonnages is in prospect. A few small lots are being offered by railroads.

**Philadelphia**—Several thousand tons of No. 2 melting steel has been sold at $5.50, delivered Eastern Pennsylvania and a couple of thousand tons of low phosphorus scrap at about $10, delivered. A round lot of heavy breakable cast has moved at $8.50, delivered. More export shipments are in preparation. A ship is now starting to load at Baltimore with No. 2 melting steel for Italy.

**Boston**—Domestic demand for all grades of scrap is light, although Worcester, Mass., is taking small lots at unchanged prices. Most activity is in water shipments of No. 1 and No. 2, a boat loading about 3500 tons of the latter for Danzig. About 1200 tons of elevated girder rails sold to Japan as No. 1 steel. A barge or two frequently moves to the Delaware river district.

**New York**—New export business in scrap includes 10,000 tons for Italy for which $3.50, barge, is being paid. Against old export orders for this grade and No. 1, buying continues at unchanged prices with $4 having disappeared for No. 2. Other grades are dull and rail shipments are absent, although small barge lots of stove plate for Bayonne N. J., are being loaded for which $4.50 is paid.

**Buffalo**—Scrap is scarce and can not be brought into Buffalo for profitable turnover at current quotations dealers declare. Predictions are that early purchases will be at advances over recently prevailing quotations.

**Cleveland**—Lessened activity in open-hearth plants has caused restrictions against shipments of scrap. There is no buying aside from occasional small lots, which are infrequent. Prices are nominal.

**Detroit**—Iron and steel scrap prices appear unusually firm in the face of the general disturbance of business. Automobile production is declining, indicating a curtailment of offerings.

**Cincinnati**—Only minor dealings in iron and steel scrap were reported the past week. Mills continue to shun heavy commitments, although the potential supply of scrap is such as to encourage higher prices with any considerable upturn in demand.

**St. Louis**—Purchasing of iron and steel scrap is still limited, both by mills and foundries. A few cars of cast scrap are moving to jobbing foundries. Malleable plants are operating on low schedules, and are apparently well stocked with raw material.

**Toronto, Ont.**—Iron and steel scrap is dull. Dealers quote $7 for heavy melting steel and $2 for turnings. Current demand is chiefly for cast scrap with dealers offering $9. to $9.50 per net ton, delivered, Toronto. Supplies are limited and dealers are importing. Stove plate and malleable grades are slow, with small holdings and dealers offer $8 per net ton for the two grades. Other lines are at a standstill with prices unchanged.

**Birmingham, Ala.**—As with pig iron scrap demand lags severly. All prices are weak.


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Blue Annealed Sheets,
Sheared Plates: also Billets.

Rolled Steel Floor Plates
*Diamond, Diamondette and Ribbed Patterns*

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# Pig Iron

**Light, Sluggish Buying Is Rule With Prices Unchanged—Dutch, Indian Iron, Compete in East**

PIG IRON PRICES, PAGE 38

**Pittsburgh**—Merchant pig iron shipments have taken a further decline and a merchant furnace has been banked. Foundry irons are moving slower, with truck shipments even more prevalent than the occasional carloads. Requirements of three nonintegrated steel producers have been satisfied by recent shipments of basic from one producer, and there is little likelihood of any new purchasing from these three buyers. The market appears to be $15, Pittsburgh district furnace, for foundry grades, with bessemer, basic and malleable, especially the latter two markets, hardly tested. One foundry here purchased two carloads of foundry iron recently and this is believed to be the largest buy in several weeks in the merchant trade.

**Boston**—Sluggishness continues in pig iron, sales and inquiry being limited to a car or two at a time. Few consumers are carrying stocks of a size to meet even a moderate increase in castings. Prices continue unchanged and untested on volume business. At some southern New England points, eastern Pennsylvania iron is available at $15.25, delivered, but on a strictly price basis is still at considerable disadvantage with Dutch iron at $13, dock. A few small lots of India have moved at close to $14, dock.

**New York**—Pig iron buying is light at unchanged prices for domestic brands, although imported Dutch iron at Port Newark is available at lower prices in competition with domestic iron. A good part of the several thousand tons arriving at northern New Jersey was for a New Jersey pipe foundry. Inquiry and sales are limited to a few thousand tons.

**Philadelphia**—Demand for pig iron is limited to single carloads, although some steelmaking iron is expected to be purchased shortly.

**Buffalo**—Shipments of pig iron from district piles have shown material improvement the past ten days. While purchasing continues restricted to small quantities, sellers are much encouraged by the betterment in their trade and look for the quarter to finish with greater strength than it began.

**Cleveland**—Sales are at the lowest point of the year to date, not more than 1000 tons having been booked here during the week. Requirements in the local market are limited to an occasional carload. Two inquiries were received here, totaling 350 tons. Prices are unchanged.

**Cincinnati**—Orders for pig iron were held to carload lots the past week, the dull market showing no immediate effect from banking restrictions. Absence of tonnage orders or inquiries has been the rule in recent weeks, so that a similar report now cannot be laid to the bank situation.

**Chicago**—Pig iron demand showed no appreciable decline the past week. While automotive shipments lack improvement, consumption by smaller foundries shows occasional gains. A number of small units have increased their melt moderately, although operations still are limited to only a few days a week. February shipments increased about 10 per cent over January, marking a continuation of the fairly consistent upturn that commenced last August. Prices remain $15.50, furnace, for No. 2 foundry and malleable.

**St. Louis**—Pig iron is holding the moderate improvement of the last two weeks of February. More small orders have been booked, sales the past few days totaling 1000 tons. Implement manufacturers are expected in the market more heavily this month. Chief users, however, still are jobbing foundries. Prices are unchanged, but with a firm undertone.

**Birmingham, Ala.**—The lagging market continues, with no indications of early recovery. Two furnaces are on, one on foundry and other on basic. This schedule is temporary.

**Toronto, Ont.**—While demand for merchant pig iron is fairly well sustained at recent levels there are indications of tapering in some directions. No future buying is being done. The daily melt is down to 12 per cent.

---

General consumption of copper in Germany decreased from 263,000 metric tons in 1927 to 160,000 tons in 1931, according to the department of commerce.


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# Warehouse

### Trade Volume Holds Close to Rate of January

Warehouse Prices, Page 49

**New York**—Warehouse volume with most jobbers in February was slightly above that of January, although hardly more than 5 per cent in most instances. Buying is in small lots and prices are unchanged and untested by substantial business.

**Boston**—Warehouse volume is light with jobbers quoting No. 24 galvanized sheets at 5.90c, a reduction from 6.40c.

**Philadelphia**—Warehouse business here reflects light demand and small sales.

**Pittsburgh**—Local warehouses found February sales practically balancing those of January. Prices hold, except bars and small shapes, where mill competition in one instance has proved unsettling. Galvanized, blue annealed and hot-rolled sheets from stock are steady.

**Cleveland**—Warehouse business here has been affected adversely by the limitation placed on bank withdrawals, buyers complaining that 5 per cent of their working capital is insufficient to finance new purchases. The market is slower than in some weeks. Prices are unchanged.

**Detroit**—Warehouse business in iron and steel has been affected with accelerated force in each of the succeeding weeks since the bank holiday and consequent modified reopening of banks was declared. The situation has been aggravated by similar interruptions in nearby territory, tending to contract automobile sales and hence retard production here.

**Chicago**—Sales have moderated slightly following a fairly substantial upturn a week ago but are above the low January level. Prices are fairly steady following recent reductions in sheets and wire products.

**Cincinnati**—Warehouses have failed to note the usual March upturn in tonnage. In fact, there was a slight falling off in ordering. No. 24 galvanized sheets were reduced from 3.90c to 3.55c. Black No. 24 was continued at 3.50c and No. 10 blue at 3.05c.

**St. Louis**—While irregular, further slight betterment is noted in business of iron and steel warehouses. There has been a fair volume of buying by the railroads, chiefly for repair shops. Sales in February were about equal to those of January.

## Wire Rod Prices for Second Quarter Reaffirmed

Semifinished Prices, Page 38

Prices for the second quarter on sheet bars, billets and slabs have not been determined, but in the meantime, $26, Pittsburgh, Youngstown and Cleveland continues the base. Wire rods have been reaffirmed at $35, Pittsburgh or Cleveland, for the second quarter. No change is reported in forging billets, continuing $31.

## Warehouse Quotations at Leading Centers, in Cents Per Pound

*(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)*

**STEEL BARS**

| | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 2.90c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Cleveland | 2.75c |
| Detroit | 2.85c |
| Houston | 2.40c |
| Los Ang. | 3.30c |
| New York‡(d) | 3.10c |
| Philadelphia | 2.45c |
| Pittsburgh | 2.60c |
| Portland | 3.35c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.00c |
| St. Paul | 3.00c |
| Tulsa | 3 25c |

**IRON BARS**

| | |
|---|---|
| Baltimore | 2.35c |
| Boston†† | 3.10c |
| Buffalo | 3.15c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Detroit | 2.85c |
| New York‡(d) | 3.10c |
| Philadelphia | 2.45c |
| St. Louis | 3.00c |
| Tulsa | 3.25c |

**REINFORC. BARS**

| | |
|---|---|
| Baltimore | 2.35c-3.00c |
| Boston | 3.10c-3 25c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Cincinnati | 3.00c |
| Cleveland | 2.10c-2.25c |
| Detroit | 2.85c |
| Houston | 3.00c |
| Los Ang. cl. | 2.10c |
| Los Ang., lcl | 2.40c |
| New York | 2.65c-3.10c |
| Phila. | 2.62½c |
| Pittsburgh | 2.60c |
| San Fran. cl. | 2.40c |
| San Fran. lcl | 2.80c |
| Seattle | 3.00c |
| St. Louis | 3.15c |
| Tulsa | 3.25c |
| Young. | 2.30c-2.60c |

**SHAPES**

| | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 3.00c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland | 2.95c |
| Detroit | 3.10c |
| Houston | 2.65c |
| Los Ang. | 3.30c |
| New York(d) | 3.10c |
| Philadelphia | 2.45c |
| Pittsburgh | 2.85c |
| Portland | 3.35c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

**PLATES**

| | |
|---|---|
| Baltimore* | 2.35c |
| Boston†† | 3.00c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland, ¼-in. and thicker | 2.95c |
| Cleve., 3/16-in. | 3.20c |
| Detroit | 3.10c |
| Det., 3/16-in. | 3.10c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New York(d) | 3.30c |
| Philadelphia | 2.45c |
| Phila. floor | 5.10c |
| Pittsburgh | 2.85c |
| Portland | 3.35c |
| San Fran. | 3.15c |
| Seattle | 3.00c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

**NO. 10 BLUE**

| | |
|---|---|
| Baltimore* | 2.80c |
| Boston†† | 2.90c-3.00c |
| Buffalo | 3.10c-3.25c |
| Chattanooga | 3.50c |
| Chicago | 2.75c-2.90c |
| Cincinnati | 3.05c |
| Cleveland | 3.00c |
| Detroit | 2.90c-3.05c |
| Houston | 3.35c |
| Los Ang. | 3.60c |
| New York | 3.00c |
| Portland | 4.00c |
| Phila.*† (e) | 2.70c |
| Pitts.** | 2.65-2.90c |
| San Fran. | 3.50c |
| Seattle | 3.50c |
| St. Louis | 3.00c-3.15c |
| St. Paul | 3.45c |
| Tulsa | 3.70c |

**NO. 24 BLACK**

| | |
|---|---|
| Balt.*† | 3.50c |
| Boston†† | 3.85c |
| Buffalo | 3.70c |
| Chattanooga | 3.65c |
| Chicago | 3.20c |
| Cincinnati | 3.50c |
| Cleveland | 3.25c |
| Detroit | 3.50c |
| Los Ang. | 4.20c |
| New York | 3.25c |
| Phila.*†(e) | 3.15c |
| Pitts.** | 3.35c |
| Portland | 4.50c |
| San Fran. | 3.90c |
| Seattle | 4.25c |
| St. Louis | 3.70c |
| St. Paul | 3.695c |
| Tulsa | 4.75c |

**NO. 24 GAL. SHEETS**

| | |
|---|---|
| Balt.*† | 4.00c |
| Buffalo | 4.00c |
| Boston†† | 4.05c |
| Chattanooga | 3.95c |
| Chicago | 3.25c-3.50c |

††Base 15,000 lbs., extras on less.

| | |
|---|---|
| Cincinnati | 3.55c |
| Cleveland | 3.50c |
| Detroit | 3.75c |
| Houston | 3.57c |
| Los Ang. | 4.50c |
| New York | 3.75c |
| Phila.*† (e) | 3.50c |
| Pitts.** | 3.85c |
| Portland | 5.00c |
| San Fran. | 4.55c |
| Seattle | 4.75c |
| St. Louis | 4.00c |
| St. Paul | 4.19c |
| Tulsa | 5.10c |

**†BANDS**

| | |
|---|---|
| Baltimore | 2.65c |
| Boston†† | 3.40c |
| Buffalo | 3.30c |
| Chattanooga | 3.20c |
| Chicago | 2.95c |
| Cincinnati | 3.20c |
| Cleveland | 3.00c |
| Det. 3/16-in. & lighter | 3.15c |
| Houston | 2.85c |
| Los Ang. | 3.80c |
| New York(d) | 3.30c |
| Philadelphia | 2.75c |
| Pittsburgh | 2.95c |
| Portland | 3.85c |
| San Fran. | 3.15c |
| Seattle | 3.50c |
| St. Paul | 3.20c |
| Tulsa | 3.45c |

**†HOOPS**

| | |
|---|---|
| Baltimore | 2.65c |
| Boston | 4.90c |
| Buffalo | 3.95c |
| Chicago | 3.50c |
| Cincinnati | 3.75c |
| Det. No. 14 & lighter | 3.30c |
| New York | 3.30c |
| Philadelphia | 3.00c |
| Pittsburgh | 3.60c |
| Seattle | 5.00c |
| St. Paul | 3.75c |

†New extras apply.

**COLD FIN. STEEL**

*Rounds and Hexagons*

| | |
|---|---|
| Baltimore (c)* | 3.48c |
| Boston | 3.60c |
| Buffalo | 3.00c |
| Chattanooga* | 3.65c |
| Chicago | 3.00c |
| Cincinnati | 3.32c |
| Cleveland | 2.95c |
| Detroit | 3.15c |
| Los Ang. (a) | 4.25c |
| New York(g) | 3.54c |
| Pittsburgh | 2.95c |
| Portland (a) | 4.50c |
| San Fran(d)(f) | 5.55c |
| Seattle (a) | 4.50c |
| St. Paul (a) | 3.20c |
| St. Louis | 3.36c |
| Tulsa | 4.65c |

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. Phila. bar base 3.35c

**COLD ROLL. STRIP**

| | |
|---|---|
| Boston 0.100 in., 500 lb. lots | 5.20c |
| Buffalo | 5.25c |
| Chicago (b) | 5.65c |
| Cincinnati | 5.80c |
| Cleve. (b) | 5.55c |
| Detroit | 5.40c |
| Phila. (c) | 4.55c |
| New York | 4.55c |

(a) Rounds, hex. only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras included.
‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles.

## Nonferrous Mill Products

*Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.00c, Conn., for copper*

| | |
|---|---|
| **SHEETS** | |
| Yellow brass (high) | 10.50 |
| Copper, hot rolled | 13.12½ |
| **Lead sheets, cut, to jobbers** | **7.00** |
| **Zinc sheets (100-lb. base)** | **9.00** |
| **TUBES AND PIPES** | |
| Seamless yellow brass (high) | 12.75 |
| Seamless copper | 11.87½ |
| **RODS** | |
| Yellow brass (high, full turning) | 8.00 |
| Naval brass | 9.12½ |
| **ANODES** | |
| Copper, untrimmed | 10.00 |
| **WIRE** | |
| Yellow brass (high) | 10.50 |

## Old Metals

*Dealers' buying prices, cents lb.*

| | |
|---|---|
| **NO. 1 COMPOSITION RED BRASS** | |
| New York | 2.37½ to 2.62½ |
| Chicago | 2.00 to 2.12½ |
| Cleveland | 2.25 to 2.50 |
| St. Louis | 2.25 |
| **HEAVY YELLOW BRASS** | |
| New York | 1.75 to 1.87½ |
| **HEAVY COPPER AND WIRE** | |
| New York | 3.62½ to 3.82½ |
| Chicago, No. 1 | 2.87½ to 3.00 |
| Cleveland | 2.75 to 3.00 |
| St. Louis | 2.50 |
| **COMPOSITION BRASS BORINGS** | |
| New York | 2.25 to 2.50 |
| **YELLOW BRASS TUBING** | |
| Cleveland | 1.50 to 1.75 |
| **LIGHT COPPER** | |
| New York | 2.75 to 2.87½ |
| Chicago | 2.00 to 2.12½ |
| Cleveland | 2.25 to 2.50 |
| St. Louis | 2.25 |
| **LIGHT BRASS** | |
| Chicago | 0.87½ to 1.00 |
| Cleveland | 1.00 to 1.12½ |
| St. Louis | 1.25 |
| **LEAD** | |
| New York | 2.00 to 2.25 |
| Cleveland | 1.50 to 2.00 |
| Chicago | 1.75 to 2.00 |
| St. Louis | 2.00 |
| **ZINC** | |
| New York | 1.12½ to 1.25 |
| Cleveland | 0.87½ to 1.00 |
| Chicago | 0.87½ to 1.00 |
| St. Louis | 1.25 |
| **ALUMINUM** | |
| Clippings, new, soft, Cleve. | 9.50 to 11.00 |
| Clippings, hard, Cleveland | 6.00 to 6.50 |
| Borings, Cleveland | 2.50 to 3.50 |
| Mixed cast, Cleveland | 4.00 to 4.50 |
| Mixed cast, St. Louis | 4.00 to 4.25 |

## Secondary Metals

| | |
|---|---|
| Brass ingot, 85-5-5-5 | 5.25 |
| Remelt aluminum No. 12.. | 8.00 to 9.00 |

# Metals

**Prices Are Well Maintained Despite Adverse Influences in Business and Slow Demand**

**New York**—Metal prices were well maintained last week despite the development of further adverse factors in the business situation. Demand for most metals was quiet, however.

**Copper**—No pressure was discernible on the part of sellers to dispose of metal although consumer interest remained negligible. Custom smelters quoted electrolytic metal at 5.00c, Connecticut, for delivery through June. The large mine producers still showed no inclination to take business in the open market. Sales of copper abroad were in somewhat larger volume for the week. Japan continued a fairly active buyer in this country. The most important development of the week was a uniform reduction in copper and brass products prices. This brought quotations down to the basis of 5-cent copper. The move was understood to be prompted by the fact that independent interests have been buying metal in the open market at 5.00c, while firms affiliated with mining companies have been paying 5.50c.

**Lead**—Demand was slow the latter part of the week but fair sales were booked early in the period. Sellers opened books for April business but were understood not to have taken much business for this position. February shipments were reported to have declined about 2000 tons under the 19,000-ton total for January. Prices presented a steady appearance.

**Zinc**—A firmer price undertone developed in the market but sales showed no appreciable increase. March business was reported done during the week at 2.67½c, East St. Louis. Some sales also were reported made at 2.70c but metal could be had from some sellers at 2.65c. The International Zinc Cartel was renewed until June 30.

**Tin**—World visible supply of tin was cut 1063 tons in February, which followed a reduction of 1573 tons in the preceding month. This resulted in a stronger market for the metal. Sales in this country, however, remained light. Domestic deliveries declined to 3045 tons in February from 3725 tons in January.

**Antimony**—Prices remained unchanged with demand quiet.

**Aluminum**—No change was apparent from recent slow demand but prices were steady.

## By-Products Steady

**New York**—Coke by-products are firm. The recent slight gain in benzol activity is holding. Industrial consumers of phenol are taking small lots. Naphthalene orders on contracts are steady. Sulphate of ammonia is seasonally active.

## Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

| | Spot |
|---|---|
| Pure benzol | $0.20 |
| 90 per cent benzol | 0.20 |
| Toluol | 0.30 |
| Solvent naphtha | 0.26 |
| Comercial xylol | 0.26 |

Per Pound at Producers' Plants in 250-Pounds Drums

| | |
|---|---|
| Phenol | 0.153 to 0.173 |

Per Pound at Producers' Plants

| | |
|---|---|
| Naphthalene flakes | 4.75 to 5.75 |
| Naphthalene balls | 4.75 to 5.75 |

Per 100 Pounds Atlantic Seaboard

| | |
|---|---|
| Sulphate of ammonia | $1.10 |

## Quicksilver Firm

**New York**—Quicksilver prices are firm, with round lots at $49 a virgin flask of 76 pounds, and small lots at $50. Demand is more active.

## Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

| | Copper | | | Straits Tin | | Lead | Lead | Zinc | Aluminum | | Ingot |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Electro., del. Conn. | Lake, del. Midwest | Casting, refinery | New York Spot | New York Futures | N. Y. | East St. L. | St. L. | 98-99% | Antimony Spot, N. Y. | Nickel |
| Feb. 25 | 5.00 | 5.12½ | 4.75 | 23.20 | 23.40 | 3.00 | 2.87½ | 2.65 | 22.90 | 5.62½ | 35.00 |
| Feb. 27 | 5.00 | 5.12½ | 4.75 | 23.25 | 23.35 | 3.00 | 2.87½ | 2.67½ | 22.90 | 5.62½ | 35.00 |
| Feb. 28 | 5.00 | 5.12½ | 4.75 | 23.20 | 23.30 | 3.00 | 2.87½ | 2.65 | 22.90 | 5.62½ | 35.00 |
| March 1 | 5.00 | 5.12½ | 4.75 | 23.50 | 23.67½ | 3.00 | 2.87½ | 2.65 | 22.90 | 5.62½ | 35.00 |
| March 2 | 5.00 | 5.12½ | 4.75 | 23.55 | 23.85 | 3.00 | 2.87½ | 2.65 | 22.90 | 5.62½ | 35.00 |
| March 3 | 5.00 | 5.12½ | 4.75 | 23.75 | 24.10 | 3.00 | 2.87½ | 2.65 | 22.90 | 5.62½ | 35.00 |

# Pacific Coast

**Dullness General and Little New Inquiry Appears—Some Weakness Develops in Prices—Sheets from Store Placed on Lower Schedule—Public Work Supplies Most Tonnage**

**San Francisco**—(*By Air Mail*)—Few contracts of importance were noted during the past week. Demand continues spotted and inquiries are slow in coming forth. The largest award of the week called for 235 tons of shapes for a telephone building in San Francisco awarded to the Judson-Pacific Co. Prices are weak and less than 1.85c, c.i.f., has been named on plates. On the other hand, structural shapes are firm at 2.10c, c.i.f., for standard shapes and at 2.20c for wide flange material.

Only one reinforcing bar award in excess of 100 tons was reported. J. L. Young Engineering Co., Honolulu, T. H., booked 200 tons for an immigration station at Honolulu. Bids have been opened on 570 tons for a bridge over the San Gabriel river in Los Angeles county, California. Bids are being taken on 500 tons for a department store on Main street, Alhambra, Calif. Bids have been opened on 330 tons for a postoffice at San Jose, Calif. Out-of-stock prices remain weak at 2.00c, base, on carloads lots both in the Los Angeles and San Francisco districts. Merchant bar steel is quoted at 2.10c, c.i.f., with small lots moving.

Bids opened this week on 850 tons of plates for a pipeline for the Hetch Hetchy project, San Francisco. Bids open next week on 4500 tons for a floating drydock at San Diego, Calif., and on 100 tons for three 500-horsepower boilers for the same naval station. C. C. Moore & Co., San Francisco, was low bidder on 400 tons for two 500-horsepower boilers for the General hospital, Los Angeles.

Only two structural awards of size were reported placed during the week. Judson-Pacific Co. secured 235 tons for a telephone building in San Francisco and unnamed interests booked 200 tons for a postoffice at Yuma, Ariz. New inquiries include 1500 tons for a new county jail, San Francisco and 1000 tons for a bridge at Twenty-third avenue, Oakland, Calif. Bids open March 21 for 800 tons for a postoffice at Phoenix, Ariz.

## Dull on North Coast

**Seattle**—There is little animation in the iron and steel markets of the Pacific Northwest. Contemplated projects develop slowly and volume of business is small, as for some time.

Mill prices show signs of weakness, reductions in sheets having resulted in a revision of warehouse schedules on these items, effective Feb. 25. Consequently, wholesale jobbers here have cut galvanized and black, 25 cents and blue annealed 50 cents, to 4.75c, 4.25c and 3.50c respectively. While this month's jobbing turnover is slightly better than January, conditions continue unsatisfactory. January total was probably the worst in three years.

Bonner county, Idaho, commissioners will open bids at Sand Point March 8 for a 102-foot bascule bridge involving 13 tons of reinforcing and 76 tons of shapes. Seattle has awarded to Allis-Chalmers Mfg. Co. the contract for two pumping units with 200-horsepower motors for the water system.

Cast iron pipe inquiry is confined to small tonnages, the largest job up being at Bellingham, Wash., bids March 9, for 15,657 feet of various sizes. The board has adopted a provision specifying American materials.

# Steel in Europe

**British Position Improves—Entente Delays Trade**

**London**—(*By Radio*)—Middlesbrough pig iron situation is improving, prices are steady, domestic demand is increasing and stocks are being worked off. Steel is making slight improvement and shipbuilding is more active. In the Midlands conditions continue quiet, although Continental competition has come to an end. Galvanized sheet exports encounter Belgian competition. Hungary has placed an order for locomotives.

The Continent reports trade uncertain, owing to protracted steel entente negotiations. Firms exporting to the Far East now refuse to insure against war risks. A leading French steelworks has gone into receivership.

## Current Iron and Steel Prices of Europe

**Dollars at Rates of Exchange, March 2**

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

| | British gross tons U. K. ports | | Continental Channel or North Sea ports, metric tons Gold parity, $4.8665 | |
|---|---|---|---|---|
| **PIG IRON** | | £ s d | | £ s d |
| Foundry, 2.50-3.00 Silicon | $10.12 | 2 18 6 | $8.27 | 1 14 0 |
| Basic bessemer | 9.34 | 2 14 0* | 6.57 | 1 7 0 |
| Hematite, Phos. .03-.05 | 10.21 | 2 19 0 | ..... | ..... |
| **SEMIFINISHED STEEL** | | | | |
| Billets | $17.30 | 5 0 0 | $10.46 | 2 3 0 |
| Wire rods, No. 5 gage | 25.95 | 7 10 0 | 21.90 | 4 10 0 |
| **FINISHED STEEL** | | | | |
| Standard rails | $26.82 | 7 15 0 | $26.77 | 5 10 0 |
| Merchant bars | 1.00c | 6 10 0 | .56c | 2 11 0 |
| Structural shapes | 1.14c | 7 7 6 | .48c | 2 4 0 |
| Plates, †¼ in. or 5 mm | 1.31c | 8 10 0 | .72c | 3 5 0 |
| Sheets, black, 24 gage or 0.5 mm. | 1.31c | 8 10 0 | 1.27c | 5 15 0 |
| Sheets, gal., 24 gage, corr. | 1.62c | 10 10 0 | 1.49c | 6 15 0 |
| Bands and strips | 1.19c | 7 15 0 | .80c to .83c | 3 12 6 to 3 15 0 |
| Plain wire, base | 1.35c | 8 15 0 | 1.18c | 5 7 6 |
| Galvanized wire, base | 1.62c | 10 10 0 | 1.38c to 1.40c | 6 5 6 to 6 7 6 |
| Wire nails, base | 1.85c | 12 0 0 | 1.27c | 5 15 0 |
| Tin plate, box 108 lbs. | $ 2.77 | 0 16 0 | ..... | ..... |

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

| | | £ s d | | French Francs | | Belgian Francs | | Reich Marks |
|---|---|---|---|---|---|---|---|---|
| Fdy. pig iron, Si. 2.5 | $10.81 | 3 2 6 | (a)$ 8.10 | 205 | $ 8.46 | 300 | $16.47 | 69 |
| Basic bessemer pig iron | 10.21 | 2 19 0* | (a) 6.32 | 160 | 7.90 | 280 | 18.02 | 75.50 |
| Furnace coke | 2.34 | 0 13 6 | 4.75 | 120 | 3.10 | 110 | 4.59 | 19.25 |
| Billets | 17.30 | 5 0 0 | 14.62 | 370 | 10.29 | 365 | 23.03 | 96.50 |
| Standard rails | 1.27c | 8 5 0 | 1.25c | 697 | 1.50c | 1,150 | 1.43c | 132 |
| Merchant bars | 1.04c | 6 15 0 | .95c | 530 | .60c | 465 | 1.19c | 110 |
| Structural shapes | 1.35c | 8 15 0 | .99c | 550 | .60c | 465 | 1.16c | 107.50 |
| Plates, †¼-in. or 5 mm | 1.35c | 8 15 0 | 1.17c | 650 | .74c | 570 | 1.37c | 127 |
| Sheets, black | 1.46c | 9 10 0§ | 1.44c | 800‡ | .91c | 700‡ | 1.56c | 144‡ |
| Sheets, galv., corr., 24 ga. or 0.5 mm | 1.81c | 11 15 0 | 2.39c | 1,325 | 1.87c | 1,440 | 4.00c | 370 |
| Plain wire | 1.42c | 9 5 0 | 2.03c | 1,130 | 1.69c | 1,300 | 1.91c | 177 |
| Bands and strips | 1.46c | 9 10 0 | .90c | 500 | .81c | 625 | 1.37c | 127 |

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel. (a) Delivered.

# Equipment

### Pittsburgh Mills Reviving Plans for Buying

**Pittsburgh**—Steel mill equipment purchases and inquiry have been decidedly more active the past week. Wheeling Steel Corp. is erecting additional annealing furnaces at its Yorkville, O., tin plate plant which will serve the strip mill. The company is moving some of its rolling mill equipment from the Steubenville, O., works to Yorkville, O., and has awarded a contract for several new mill bays. An inquiry is reported active for two new pack furnaces.

National Tube Co. is having a mill designed for installation at its Ellwood works, Ellwood City, Pa., to manufacture seamless tubular goods under the license of Diescher Tube Mills Inc. This mill is expected to produce tubing up to 4½ inches o.d. Inquiry for a charging machine is reported along with other steelmaking equipment from Naugle & Townsend Inc., Canton, O., who are planning to manufacture steel by electric furnace and centrifugal casting process.

Railway Steel Spring Co., Latrobe, Pa., is preparing to spend about $50,000 in a plant modernization program. Power conservation equipment, a new stoker, and facilities to utilize exhaust steam for heating purposes are being considered for purchase.

**Worcester, Mass.**—Awards have been made on a small group of tools, pending some time for navy shops in New England, but buying on the part of private industry continues light, as does inquiry. A few shops are finishing up some export business, but operating rates generally continue low.

**New York**—Prospective purchasers of machinery and shop equipment are slow to close, although some scattered business is being figured. Curtailed operating schedules preclude purchases on the part of most plants.

**Chicago**—Occasional orders for individual items and continued quietness in new inquiry constitute activity in the market for plant equipment. Demand for small tools is fairly steady. The absence of machine tool business from railroads is felt keenly.

**San Francisco**—Bids close March 14 on two engine lathes for the navy, Puget Sound; three sensitive drills, Puget Sound; one geared-head engine lathe, east or west yards; and one precision lathe, east or west yards.


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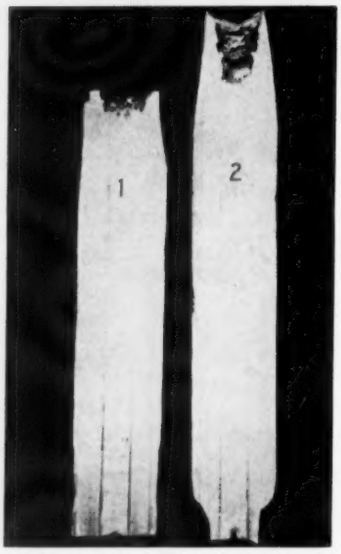


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# Here and There In Industry

BUCHER & GIBBS PLOW CO., Canton, O., manufacturer of agricultual implements, has been reorganized by Emil and Bernard Levene, Philadelphia, manufacturers of motors and allied products. The property was auctioned Feb. 21 by the federal court. The former line of agricultural implements will be manufactured. Stephen K. Miller is general manager. A charter has been taken out in Maryland. Department heads and key men have been recalled to their positions.

□ □ □

Doehler Die Casting Co., New York, has decided to move its general offices to Toledo, O., where its largest manufacturing plant is located. An eastern sales office will be maintained in New York, in charge of L. H. Pillion, vice president and sales manager. The brass division is to be maintained at Batavia, N. Y., and manufacturing operations will be continued at the plant at Pottstown, Pa.

□ □ □

Bastian-Blessing Co., Grand Haven, Mich., and Russ Mfg. Co., Cleveland, are being consolidated and the equipment at Grand Haven will be removed to Cleveland. Beer equipment is an important part of the output. Laurence D. Ely is president of the Russ company.

□ □ □

Pittsburgh Steel Co., Pittsburgh, has moved its purchasing department from the fourth floor, Union Trust building, Pittsburgh, to the company's main offices on the seventh floor, Union Trust building.

□ □ □

Koppers Coal & Transportation Co. has been organized to combine the principal public utility companies along the Atlantic seaboard controlled by the Mellon-Koppers interests of Pittsburgh. Included are the New England Fuel & Transportation Co. with 404 by-product coke ovens at Everett, Mass., the Connecticut Coke Co. with 61 by-product ovens at New Haven, Conn., and Philadelphia Coke Co. with 74 by-product coke ovens at Philadelphia. A number of gas, electricity and coal mining and transportation units are also included. It is estimated that $250,000,000 in assets is involved.

□ □ □

Alloy Products Co., Waukesha, Wis., has delivered to the Queensboro Dairy Co., Long Island City, N. Y., two stainless steel milk tanks for motor truck mounting. W. J. Wachowitz is president and general manager of the Alloy company.

# Construction and Enterprise

## New England

GLASTONBURY, CONN.—Connecticut Light & Power Co., 30 Pearl street, plans erection of an electric power plant to cost $30,000 or more.

WESTBROOK, CONN.—Clinton-Chester Water Co., Clinton, Conn., plans erection of a steel water tower 90 feet high.

## New York

BINGHAMTON, N. Y.—Binghamton Flexible Shaft Co. will rebuild immediately its burned plant, for the production of portable electric grinders, tools and equipment.

OSWEGO, N. Y.—Oswego Dock Corp., subsidiary of the Seaboard-Great Lakes Corp., plans a warehouse 108 x 225 feet, equipped with cranes and material-handling machinery.

## New Jersey

JERSEY CITY, N. J.—James Spence Iron Foundry Inc. has been incorporated with $100,000 capital to operate an iron foundry by Erwin & Davidson, attorneys, 99 Lembeck avenue, Jersey City, N. J.

NEWARK, N. J.—Alexander Traud & Sons has been incorporated with $100,000 capital to manufacture steel products, by Goldfinger & Goldfinger, attorneys, 738 Broad street, Newark, N. J.

## Pennsylvania

PITTSBURGH—Federal engineers will open bids March 20 for reconditioning and repair of nine steel cargo box barges now in use on channel improvements on rivers in the Pittsburgh district.

## Ohio

CINCINNATI—Ficks Steel Co. has been incorporated with 200 shares no par value, by Kunkel & Kunkel, Fountain Square building, Cincinnati.

CLEVELAND—Cleveland Steel Tie Co., has been incorporated with 250 shares no par value, by Day & Day, Standard Bank building, Cleveland.

CLEVELAND—M. & M. Screw Products Co. has been incorporated with $5000 capital by William H. Stone, Hippodrome building, Cleveland, and associates.

NAPOLEON, O.—Plant of the Plummer Spray & Equipment Co., owned by Ora Plummer and Ray Plummer, has suffered loss of about $6500 by fire. Repairs and reconstruction will be started at once.

## Michigan

LANSING, MICH.—Voters at next election will pass on issue of bonds to secure the Reconstruction Finance Corp. for a loan of about $488,000 to cover cost of a water-softening plant and equipment. E. G. Eddy is city engineer and B. Ray is city clerk.

OWOSSO, MICH.—Burwood Products Co., E. C. Morine president and general manager, which suffered loss of its plant by fire in December, will be re-established at Traverse City, Mich., to start production early in March.

## Indiana

ANDERSON, IND.—Bids will be taken about April 13 on an addition to the municipal waterworks plant, costing about $250,000. A Reconstruction Finance Corp. loan has been assured. Allen & Vogtborg, 205 West Wacker drive, Chicago, are engineers.

INDIANAPOLIS—Bryan Inc. has been incorporated with $1000 capital to deal in iron and steel scrap and metals, by L. Bryan and associates.

## Illinois

CHICAGO—Charles Braman & Son Inc., 1230 Blue Island avenue, has been incorporated with $20,000 capital to conduct a general metal business, by I. M. Leavitt, 130 North Wells street, Chicago.

## Southern States

TALLADEGA, ALA.—Newberry Bros., manufacturers of soil pipe, are building a new office and pattern shop.

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids as follows: March 7, schedule 9696, two motor-driven crank shapers, for Norfolk, Va.; March 14, schedule 9688, one motor-driven toolmaker's precision lathe; schedule 9675, two motor-driven engine lathes, for Puget Sound, Wash.; schedule 9677, three motor-driven sensitive drilling machines, for Puget Sound, Wash.; schedule 9678, one motor-driven geared-head, engine lathe.

MARIETTA, GA.—Glover Machine Works Inc. has completed plans for removing its plant from Marietta to Cordele, Ga. An electric furnace costing about $30,000 is to be built at once in the new plant and other units will be moved gradually, several months being used in the transfer.

NEW ORLEANS—Fairbanks, Morse & Co., Chicago, general contractors for the waterworks system to be installed at Morgan City, La., has awarded a contract to A. J. Falgont, Morgan City, for construction of a pump and power-house.

TALLULAH, LA.—Delta Steel Foundry has been incorporated with $5000 capital to operate a foundry and produce castings.

ABBEVILLE, S. C.—State railroad commission has granted permission to the Abbeville Power Co. to construct a hydroelectric power plant on Rocky river at Price's Mill, Abbeville county, including a 60-foot dam, to develop about 1600 horsepower, J. R. Pennell, 134 Pine street, Spartanburg, S. C., is engineer. (Noted Feb. 20).

## Missouri

ST. LOUIS—Universal Boiler Filter Corp., 4221 Forest Park boulevard, has been incorporated to manufacture boiler devices, by E. F. Wemhoener, president. For the present the company will use the production facilities of the Valley Electric Corp., at 4221 Forest Park boulevard.

ST. LOUIS—United States district court has authorized receivers to enter into an agreement with the Missouri state highway department and St. Louis county for construction of a subway on state highway No. 77 near Robertson, Mo., to cost about $60,000, divided by state and railroad.

## Oklahoma

TULSA, OKLA.—W. B. Stahl, 308 South Elwood street, has purchased the machinery, equipment and assets of the Tulsa Cylinder Grinding Co. at trustee sale. Plans for early operation of the property have not been made.

TULSA OKLA.—Frank Mathey Machine Works, 315 East Fourth street, has been established by Frank Mathey, for many years associated with his brother, C. A. Mathey, in the Mathey Machine Works. His company will specialize in general machine and gear work.

## Wisconsin

MILWAUKEE, WIS.—Milwaukee Saw Trimmer Corp. has been incorporated with 100 shares no par value to manufacture mechanical devices, by F. W. Wright, attorney, 161 West Milwaukee avenue, Milwaukee.

## Iowa

SIOUX CITY, IOWA.—P. Cook, city engineer, is making plans for installing pumps, generators and motors at the Main street pumping station, West Sixth and Main streets.

## Pacific Coast

ELLENSBURG, WASH.—The city council is investigating the proposed purchase of the Ellensburg Gas & Water Co. system at $40,000. Extensive additions and improvements will be made if it is bought.

## Dominion of Canada

ST. CATHARINES, ONT.—Hydro-gas Refineries will build a 250-barrel-per-day refinery here to supply the Niagara peninsula. A site will be bought on the Welland canal. Herbert H. Smith, city clerk, has information.

TORONTO, ONT.—Atlantic Service Co. Ltd., subsidiary of the Atlantic Service Co. Inc., New York, has bought a site at Eastern and Logan avenues, Toronto, and will build a plant for the manufacture of choppers, knives and blades for meat-grinding machines, meat saw blades and other hardware specialties.

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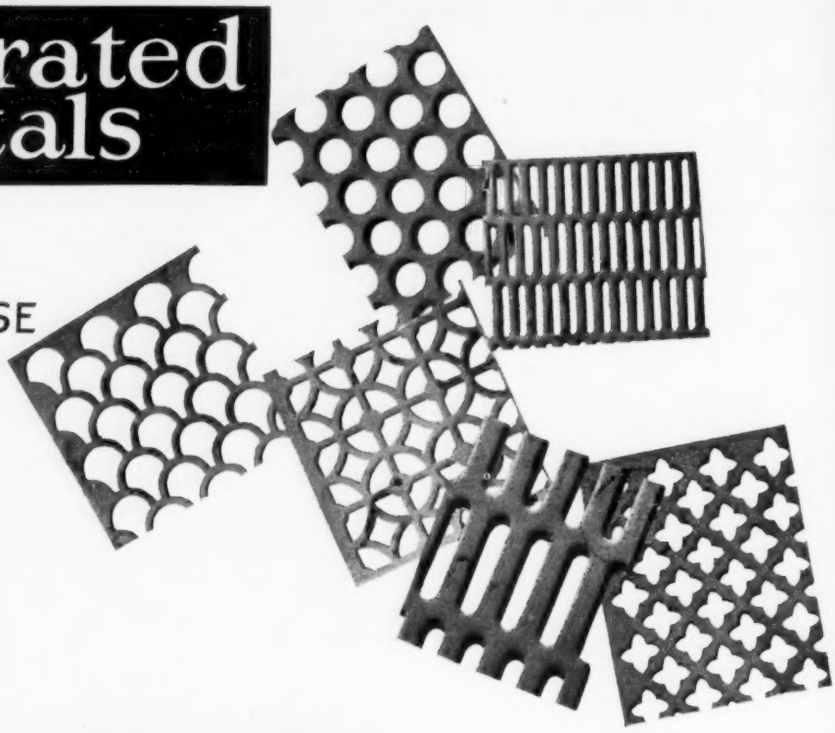

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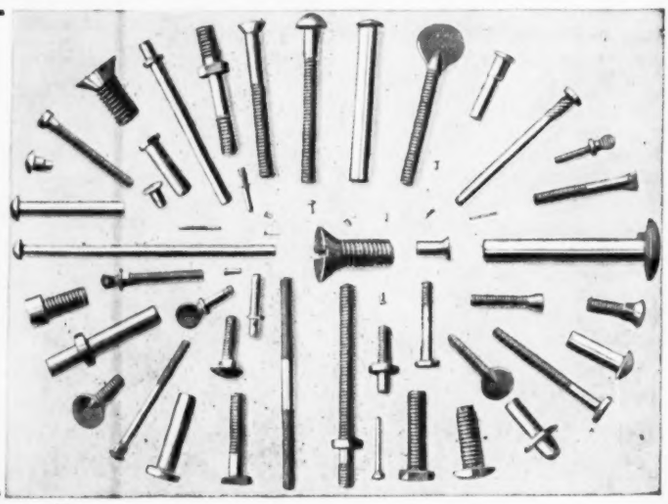
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